EDITORIAL
DOMESTIC ENGINEERING

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DEVELOPING THE NEW NEIGHBORHOOD

THE development of new residence districts in the outlying sections of different cities is particularly fascinating in the realm of retail merchandising. The character of the stores has much to do with the growth of the neighborhood, and there are many things the merchant must recognize if he wishes to build a substantial business.

The plumbing and heating contractor who may be contemplating opening a new shop in a growing residence district, should give careful consideration to the question of location. It will pay him to look over the situation carefully and talk with merchants already established. It will be well for him to get acquainted with the local banker and get his confidence on the proposal. A store that lends itself to attractive window and showroom displays should be selected. Getting the right place may require a little higher rent than had been first contemplated, but the extra money will be repaid many times over in increased sales.

The next important step for him is to let people know he is in business, and this can be done through circular letters. A list of prospects can be compiled and kept on file, and a record made of every letter sent out. A series of letters, worded differently, touching on repair business, new work, specialties, etc., can be rotated, and, if this program is followed systematically, say, at least once a month, results are sure to come.

It is very important for him to get acquainted with people personally, and when these calls are made, he can emphasize many things that cannot be done so effectively in letters or circulars.

The man who takes an active part in the development of a community soon becomes well known. People talk about him, and they cannot speak of him without also associating his business with their remarks. He becomes known as a live wire, and the residents have confidence in him. Other merchants speak of him as a progressive and do not hesitate to swing business his way. Growing up with the community and helping the community grow is as logical for the plumbing and heating contractor as for the man engaged in any other line of business. In this way he also keeps his profession before the public as one commanding general respect.

Even in new neighborhoods the old grouch against the plumber has to be contended with. This can be largely overcome by getting started in the right way and having a modern place of business. Educating the customer from the start is the surest way to get his goodwill and co-operation.

SUMMERTIME IS SHOWER TIME

THE next three months will bring big opportunities for the plumber to sell showers. They should be featured in window displays and showrooms, in moving picture slides, and in letters and circulars. Movement in advertising attracts attention. If a shower is fitted up under pressure in the window display and a stream of water runs continually into a bathtub, people will naturally stop and look. A novel stunt that has been tried with success is having a little negro boy take a shower every so often. This makes a real hit when people are passing by, particularly in sweltering weather. The contrast attracts them, and the sheer novelty of the display makes them think, talk, and buy showers.

PRODUCTION IS PATRIOTISM

WHEN a worker in any position gives to his job less than his best, he is denying himself his greatest opportunity to use and thereby train his faculties and powers. Thus he cheats himself more than anyone else, unless he makes his job help him to learn as well as to earn, says the International Business Society of Chicago. For work is education. Work is development. Work is self-expression. When labor learns this; when management learns it, there will be no conflict of interests, no scraps, no strikes; production will rise and prices will fall.

The vital point at the present time is this, that "production is patriotism." It was patriotism during the great war, and it should be even more so now when we are facing the great task of world reconstruction.

AUXILIARIES *for* FANS *in* HEATING *and* VENTILATING WORK

Necessity for Proper Foundations and Supports—
Suggestions for Eliminating Vibration and Noise

In Two Parts

By Charles L. Hubbard

(Continued from Page 422 in the May 29th Issue.)

Part 2.

Steam Engines.

Engines especially for the driving of fans have been developed by most of the large manufacturers of ventilating equipment. They are made in both vertical and horizontal form and may be either belted or direct-connected. When the former method of connection is employed, care should

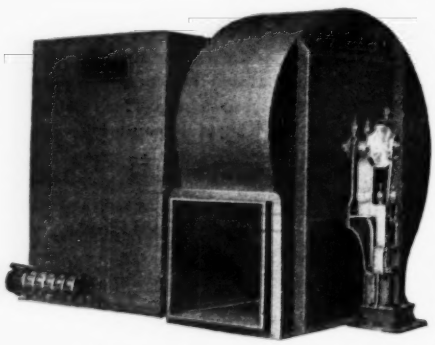


Fig. 11.

be taken to use a light and pliable belt of good width, rather than a narrow one of heavier material. As much of the noise, in case of a belt, comes from the lacing, it should always be spliced and cemented, thus making it "endless," when used for this purpose.

Engines for fan work are built to operate on steam pressures from 15 pounds up, and the available boiler pressure should always be stated when ordering an engine from the makers. Fan engines are usually made with a comparatively large cylinder diameter and short stroke in order to reduce vibration as much as possible at high speeds. All moving parts are enclosed, so far as possible, to prevent the spattering of oil as well as to protect the bearings from dust. As already noted, an engine should be scrupulously clean when located in the fan room or other air passage, as hot oil is bound to give off an odor which will be imparted to the air.

The different types of fan engines are best studied from the manufacturers' catalogues. One of the simplest outfits for hot blast heating, equipped with a single cylinder direct connected engine, is shown in Fig. 11. This entire apparatus may be mounted upon a single foundation and is one of the most compact arrangements for industrial purposes.

Steam Turbines.

These are used more especially in fan work for pressure blowers, forced draft, etc., where comparatively high speeds are required and where the usual humming noise is not objectionable. Special low-speed turbines have been designed which adapt them to a wider range of conditions in this particular field, and direct drive at still lower speeds is made possible by the geared machine which makes use of reduction gears of the herring-bone type which run quietly and give a high efficiency. A typical turbine outfit for pressure work is shown in Fig. 12.

Electric Motors.

Special lines of motors have been brought out particularly adapted to the driving of ventilating fans. The most compact and quiet-running outfits are those in which the motor is direct connected with the fan shaft and designed to operate normally at the desired fan speed. Motors used in this way must necessarily operate on a direct current, as those employing the alternating current run at too high a speed. Some attempt has been made to use motors of this type directly connected to the fan shaft in sizes coming within the range employed for fan work, but the minimum speed which it is possible to obtain is too high, in most cases to prove satisfactory. Hence, it is better to use a belt or geared connection in order to obtain a proper reduction in speed when conditions made it necessary to employ an alternating current. Direct-current motors designed especially for fan work are of the shunt type and capable of

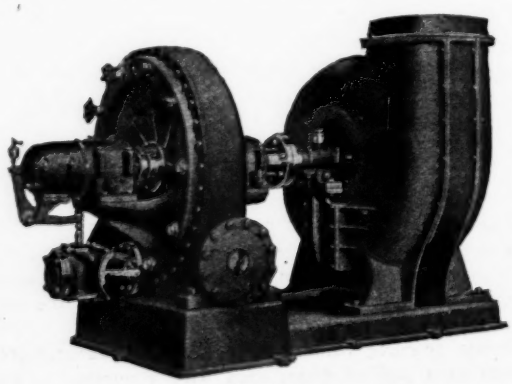


Fig. 12.

a wide range of speed under field control. They are also so constructed that different windings may be applied to the same frame, thus giving a number of different normal speeds to meet varying conditions. One line of motors on the market is made in sizes ranging from ½ to 50 horse-

power, and each may be had in approximately 25 different normal speeds, varying from 90 to 525 revolutions per minute.

The smaller sizes of direct-connected motors are usually attached to the fan casing by an annular side plate, while those of larger size require a base plate supported by an extension of the fan foundation. When the entire air volume is taken in at one side of the fan casing the arrangement shown in Fig. 13 is commonly used, in which the motor casing joins that of the fan and one of the shaft bearings is common to both fan and motor. When it is desired to use a double-inlet fan, the motor is set away, as in Fig. 14, and connected with the fan shaft by means of a flexible coupling, "A."

When the motor or engine is set on a separate foundation, or even mounted upon the same bed plate, it is impossible to maintain such a perfect shaft alignment between the two machines as to prevent more or less binding and heating in the bearings. This is overcome by the use of flexible couplings inserted where the two shafts join. These take up any irregularities in rotation without imposing enough friction upon the bearings to cause trouble. A

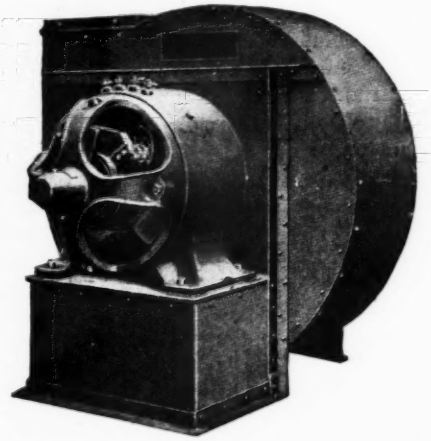


Fig. 13.

simple form of flexible coupling, which may be used where the error of alignment is small and the speed low, consists of a pair of ordinary flanges, one attached to the end of each shaft, bolted together with several layers of rubber or leather between them to give a certain amount of compression or spring at each revolution. If rubber is used, it should be renewed from time to time, as it tends to harden and lose its resiliency. It is evident that the bolts in this arrangement cannot be drawn up too tightly, thus making it necessary to employ a spring cotter outside the nut to prevent its working loose. This form of coupling may be made in any shop out of stock material. If it is preferred to purchase a coupling ready-made, or the error of alignment is considerable, there are many forms upon the market which are easily obtained.

Another coupling often furnished by fan manufacturers consists of a pair of disks, each with a number of pins tapped into the face. The pin circle is of greater diameter on one half than on the other, and an endless belt is wound through the pins, alternating over a pin on one face and then on the other, thus forming a connecting link between the halves and insuring an equal strain on each pin.

Still another coupling is made up of only three parts, consisting of two outer flanges of cast iron and a central disk of leather or hard fiber with projecting lugs which engage in corresponding openings in the flanges and thus lock them together.

This central disk also serves as an insulator between the flanges, thus making the coupling especially adapted to the connection of electric motors with fans or other equipment.

Other Methods of Connection.

When fans must be driven by alternating current motors running at high speed, either belts or gears must be resort-

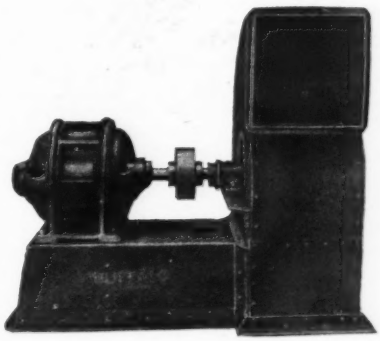


Fig. 14.

ed to for making the connection with the fan. When there is ample room, leather or fabric belting may be used, but in many cases it is necessary to economize in space and make the outfit practically as compact as when a direct drive is used. One way of accomplishing this is by the use of a noiseless chain belting of some form, as shown in Fig. 15. This makes it possible to transmit the power through short centers, as the belt runs on sprockets and does not require the tension necessary with other kinds of belting which cling to the pulley faces by friction only.

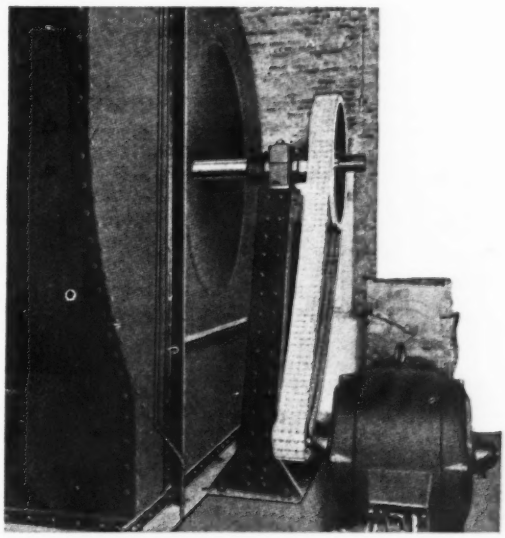


Fig. 15.

In Fig. 16 the speed of the motor is reduced to that of the fan by means of a rawhide pinion engaging with a large gear, the latter forming part of the motor equipment. The projecting shaft "A" is connected with the fan shaft by means of a flexible coupling.

In most cases it is best to drive the fan by its own

engine or motor, so as to make it independent of the rest of the plant, as it is often desirable to start up the heating system before the line shafting is in operation. There may be cases where it is more convenient and economical to drive from the line shaft, as where the building is heated by direct radiation, and it is only necessary to run the fan for ventilation during working hours, and even then,

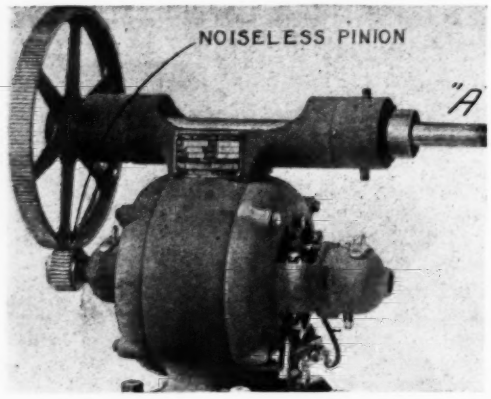


Fig. 16.

for perhaps only a portion of the time. When it is to run continuously during working hours, it may be belted directly to a convenient line shaft, but if it is desired to shut it off at any time, it will be necessary to belt from a countershaft, provided with tight and loose pulleys, as shown in Fig. 17, or else a friction clutch may be employed.

In Fig. 17 the single pulley at the right should be belted to the fan, while a belt from the line shaft may be shifted upon either the tight or loose pulleys at the left. Sometimes a friction clutch or clutch coupling is more convenient than a tight and loose pulley arrangement. A device of this kind is made of two members, one turning with the shaft and the other mounted loosely upon it. The driving pulley carrying the fan belt is slid over the sleeve and fas-

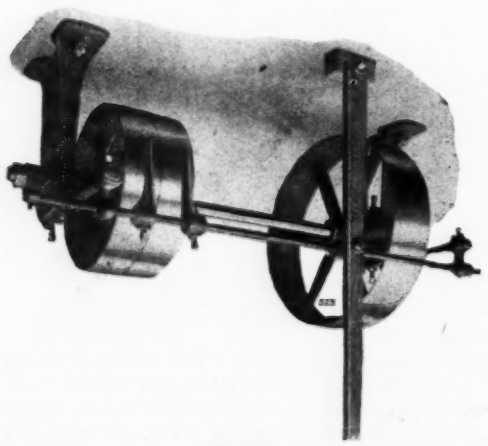


Fig. 17.

tened to it with set screws. Ordinarily the shaft turns inside the sleeve and the pulley does not revolve, but by throwing a lever, the right-hand member of the clutch is clamped to the left-hand member carrying the driving pulley, so that the entire clutch and pulley turn with the shaft and so drive the fan. A clutch of this kind can be thrown in or out while in motion, as the load may be put on gradually by bringing the jaws of the clutch together slowly. Sometimes a clutch of this kind is used to connect a counter shaft directly to the end of a fan shaft. A "jaw coupling" may be used when it is only desired to shift at infrequent periods. With this arrangement it is necessary to shut down, or at least revolve the shaft *very slowly* when throwing on the load, for, if it is done suddenly, it may produce a severe shock. Couplings of this kind are not often used in fan work, but occasionaly conditions are such that they may prove a convenience.

Speed Regulation.

In a majority of cases ventilating fans are run at a constant speed, being designed to supply a given volume of air per hour during the period of occupation. In special instances, however, it may be desirable to cut down the air supply at certain times, as in case of a school building having a large assembly hall. There may be periods when the entire building, including the hall, will be in use; others, when only the class rooms are occupied, and, finally, even-

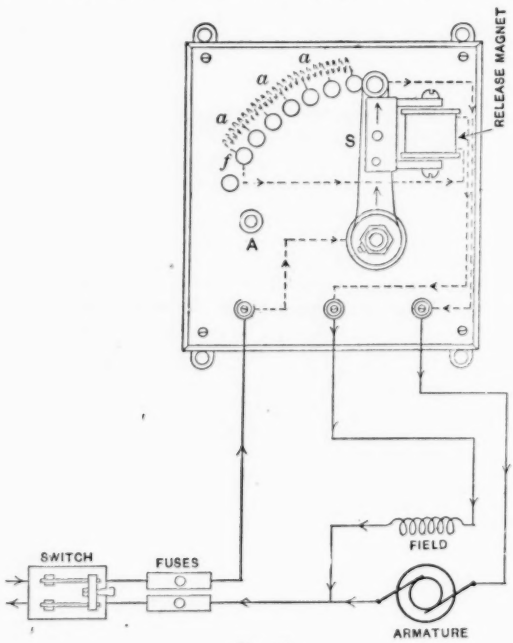


Fig. 18.

ing concerts or lectures when only the hall requires ventilation. Under such conditions it would evidently be a waste of both power and fuel to supply warm air to the whole building continuously.

The logical method of varying the air volume is by varying the fan speed. This is easily done in case of an engine drive by regulating the throttle valve and cutting down the steam supply, thus varying the speed of engine and fan at the same time. While an engine requires more steam per unit of power developed under these conditions, the total increase is small, and when the exhaust is turned into the main heater, this item is negligible. In case of variation in speed with a motor drive, speed-regulation rheostats are required.

If the fan is to run at constant speed then only a "starting box" will be necessary, which is simply a device for throwing a large resistance into the armature circuit before starting the motor, and gradually cutting this out as the fan comes up to speed. This is shown in diagram in Fig. 18, in which the starting position is with the lever "S" against

(Continued on Page 577.)

PIPING EQUIPMENT *for* INDIVIDUAL POWER PLANTS

Opportunities for the Heating Contractor in this Class of Work—Suggestions for Planning Layouts

By Ed. J. Lomasney

THE average heating and piping contractor has given too little attention to the very attractive field offered by the piping equipment of individual power plants, small and large. This is probably due, in part at least, to the feeling that it is a highly technical branch of the business. While that is true as affecting the design of boilers and engines, and the skillful operation of the plant, it is not the case in the transmission of the steam from point to point in the plant.

The elements which go to make up the layout of an average industrial piping plan are comparatively simple, and have their basis in the laws governing the flow of liquids and gases. Theory and practice have joined to make this an exact science and the facts are easily ascertained. There are a number of good authorities; and a careful study and analysis will result in a fund of exact information on the subject. Older authorities, however, are apt to mislead on the side of conservatism as the most modern practice tends to much smaller piping and consequent higher velocity of steam. It must be borne in mind that all that is necessary is to provide a substantial, practical and sufficient plant. More than that is waste. Many a projected plant is abandoned due to so high an initial cost as to make the purchase of outside power preferable. As power companies usually do their own work, the contractor is thus entirely eliminated, to his own loss and to that of the trade, for every successful small plant helps every one in the piping industry.

Where Mistakes Are Made.

One would think that with exact information so easily available, clumsy pipe layouts of extremely large size for the work to be done would be the exception. Quite the reverse is the case, and one is struck by the lack of practical knowledge in the average layout. More often than not the starting point in the design is the size opening left at the throttle of the engine by the builders. As he usually makes it "big enough", it naturally follows, many cases, that pipe sizes based on that opening are much too big; the steam main is really a steam header, velocities much too low, and the expense of installation, covering, and maintenance too great, and loss by radiation excessive.

The piping equipment of power plants is more decidedly not the work for an amateur. But any heating and piping contractor, whose experience and organization fits him to undertake the assembling of pipe work, can enter it with entire confidence. A good working knowledge of boiler and engine performance is, of course, essential, but it is not necessary to clutter up the mind with the details of boiler and engine construction, or very involved formulae. Broadly speaking, it is sufficient to know the power output of the boiler and the power intake of the engine, expressed in pounds of steam per hour, and the operating pressure, together with the steam needed for auxiliaries, such as pumps, heaters, excess for heating system, etc. Given these facts the contractor should be able to advise his client very exactly as to the proper size of piping, as well as the size and nature of all specialties, the kind and weights of all valves and fittings.

Overloads Up to 100 Per Cent Economical.

Information as to the engine capacities are furnished by the manufacturer, and the amount of steam to be used per horse power per hour is usually fixed at the time of purchase. Boiler capacities of standard design are rated in the A. S. M. E. code. It is becoming more and more frequent to operate boilers at 50 per cent to 100 per cent overload. This is indeed recommended practice, as it saves materially in initial cost of the entire plant, reduces operating costs and saves in space occupied. The writer knows of public service plants where the cost of real estate is considerable, which operate at 200 per cent overload (three times the rated capacity).

In planning any layout to operate at any given pressure, consideration must be given to the fact that as time passes the allowable working pressure of any boiler is reduced. Provision must therefore be made in the size of steam mains to carry the additional steam at lower pressure which must be used later on. This reduction is sometimes considerable.

Pipe Sizes.

The pipe sizes given in the accompanying table are based on the assumption that the apparatus will be operated several years later at the pressures noted. Calculations on these sizes were made from formulae given in Babcock & Wilcox Co.'s "Steam," and have been found in practice to be correct.

The range of sizes, pounds steam per horse-power, and velocities used in the supply mains for various types of engines are approximately as follows:

Simple, non-condensing, 150 to 250 h. p. 25 lb. per h, p. velocity steam 80 to 110 ft. per second.

Compound, non-condensing, 200 h. p., and up 20 lb. per h.p. velocity steam 100 to 125 ft. per second.

Compound, condensing, smallest unit usually about 500 h. p. and range up to 1500 h. p. 12 lb. steam per h. p. velocity steam 125 to 150 ft. per second.

Turbines, 1500 h. p. and over 8 to 9 lb. steam per h. p. velocity steam 150 to 200 ft. per second.

Velocities are sometimes referred to in "ft. per minute," but "ft. per second" is becoming the preferred form.

What the Contractor must Know.

A knowledge of the amount of steam used per horse power by an engine, and the pressure, are not sufficient to

a calculation of the required pipe size. The point of cut-off must also be known; thus at ¼ cut-off, while the mean velocity in the main would correspond to the amount used and its density, the actual momentary velocity when the engine is taking steam would be higher; twice the velocity in fact at maximum that it is at mean. This is true in reciprocating engines only, of course, and the pulsating effect becomes very pronounced unless a receiver-separator of ample size is used. Due to the absence of pulsation much higher velocities are used in turbine work.

As a given volume of steam increases by expansion when heated to a point higher than that due to its pressure, superheated steam of any given pressure is less dense than saturated steam of same pressure, and therefore the friction is less at any given velocity; or stated otherwise, the velocity is greater for any given pressure drop. Pipe sizes given in the table are for saturated steam. Velocity will increase at about 1½ per cent for every ten degrees of superheat.

NEW MEMBERS OF "LIVE WIRE" CLUB.

Twenty-seven plumbing and heating concerns in fourteen states, and one in Canada, have recently joined the "Live Wire" Club of the National Trade Extension Bureau, Evansville, Ind. By joining the live wires, the members pledge themselves to be business builders and take advantage of leads given them by manufacturers and jobbers. The Sales Help Service Department, when sending the accompanying list of new members, stated that the "Live Wire" club is really a valuable instrument for trade extension. "Properly supported by the manufacturer and jobbers, this feature of T. E. B. activity is bound to grow greatly and become a valuable aid to all concerned for prompt and effective handling of inquiries from the public. Your aid in this matter will be most effective in the way of making certain that the members of the T. E. B. 'Live Wire' Club are given promptly the first chance of selling the goods to people who make inquiry to the manufacturer and jobber about specialties."

Pounds of Saturated Steam Per Hour, Delivered Through Pipes, at Various Pressures and Velocities.

	Absolute pressure 124.7 lb. Gauge pressure 110.0 lb. Cu. ft. per lb 3.591				Absolute pressure 149.7 lb. Gauge pressure 135.0 lb. Cu. ft. per lb 3.018				Absolute pressure 199.7 lb. Gauge pressure 185.0 lb. Cu. ft. per lb 2.293			
Size	Velocity—Ft. per Second				Velocity—Ft. per Second				Velocity—Ft. per Second			
Pipe	80	100	150	200	80	100	150	200	80	100	150	200
3-inch	3,925	4,910	.....	.....	4,680	5,850	.....	.....	6,170	7,712	.....	.....
3½-inch	5,340	6,675	.....	.....	5,820	7,275	.....	.....	7,900	9,875	.....	.....
4-inch	7,000	8,750	13,125	.....	7,600	9,500	.....	.....	10,960	13,700	.....	.....
5-inch	10,900	13,625	20,440	.....	11,880	14,850	22,275	.....	17,130	21,412	.....	.....
6-inch	16,220	20,275	30,410	40,550	17,100	21,375	32,060	.....	24,670	30,840	.....	.....
8-inch	27,900	34,875	52,312	69,750	30,400	38,000	57,000	76,000	43,860	54,825	82,240	.....
10-inch	43,600	54,500	81,750	109,000	47,500	59,375	89,060	118,750	68,530	85,660	128,492	171,320

The above quantities are the actual amounts which will pass through at the given velocities. Allowances must be made for long mains and for fittings. The drop in pressure for dry steam for any of the sizes given does not exceed 3 lb. for 100 feet of straight pipe, and ranges downward to ¼ lb. drop.

In power practice boiler pressures are usually calculated from 0 atmospheric pressure, (absolute pressure) which is equivalent to gauge pressure plus 14.7 lb.

Capacity of Receiver-Separator.

Receiver-Separators should be placed immediately over the engine, for either saturated or superheated steam. Capacity of this should be at least three times the cubic capacity of the first engine cylinder, and should be drained by a high pressure trap of ample size.

Standard weight pipe is used up to 175 lb. pressure, and extra heavy pipe above that pressure. Fittings are standard up to 125 lb., usually screwed, up to 3-½ inches and flanged above that size. Extra heavy fittings over 125 lb., and flanged 2 inches and over. Fittings are preferably of the long-sweep pattern, and the main steam supply from the boiler to the engine is usually equipped with pipe bends instead of elbows.

A high grade of pipe covering should be used—just as good as it is possible to get. For the whole scheme of the plant is to convey the steam from the boilers to the engines with economy. The point where loss most easily occurs is radiation from the steam main.

An extensive summer school of Pan American and World Commerce has been organized and will hold its sessions in Washington from July 19th to August 21st. Dr. C. J. Owens, Director General of the Southern Commercial Congress, will serve as Executive Director.

C. Price-Green, of Toronto, industrial commissioner of Canadian National Railways, in an address before the United States National Editorial Association, predicted a famine in timber and its products, including print paper, unless immediate and far-reaching steps are taken for forest conservation.

Membership in the club is open to any plumbing and heating contractor in the country. When he joins, his name is sent to the contributors of the Bureau as a "Live Wire," and they get in touch with him as soon as they get an inquiry. If you're not a member already, Mr. Dealer, send in your name without delay. The following have done so. "There's a reason."

Brownie Plumbing Co., 217 S. 21st St., Birmingham, Ala.
Cullman Plumbing and Heating Co., 115 First St., Cullman, Ala.
Little Plumbing Co., 210 Dexter Ave., Montgomery, Ala.
Wm. H. Kreis, 2553 Imperial Ave., San Diego, Calif.
Wm. J. Reader, Jr., 306 Madison St., Wilmington, Del.
Melbye Bros. & Co., 1208 Webster Ave., Chicago, Illinois.
M. F. Banzhaf Co., 136 W. Main St., Marshalltown, Iowa.
Powers-Butler Co., 22 Fulton St., W., Grand Rapids, Mich.
Gross Bros., 321 North Washington Ave., Lansing, Mich.
Argyle Plumbing & Heating Co., Argyle, Minn.
E. S. Farrell & Co., 24 W. 1st St., Duluth, Minn.
C. D. Dunlap, 418 Convention Hall Ave., Springfield, Mo.
Costello Plumbing Co., 1625 S. 17th St., Lincoln, Neb.
O. W. Smith, Plainview, Nebr.
Chas. R. Friis Co., 297 Berry St., Hackensack, N. J.
Sam Katz, 477 Main St., Paterson, N. J.
Paul Freiwirth, 648 Grand St., Brooklyn, N. Y.
Hyman Greenspan, 181 Rockaway Road, Jamaica, N. Y.
Elmore H. Bohnemann, 105 Union Place, Lynbrock, N. Y.
Joseph R. Spellman, 300 W. 21st St., New York City, N. Y.
M. B. Crawford & Son, Oswego, N. Y.
Muskogee Plumbing Co., 112 S. 4th St., Muskogee, Okla.
Capitol Plumbing Co., 307 N. Hudson St., Oklahoma City.
The Stevenson Co., 30 N. Beaver St., New Castle, Pa.
Chas. J. Williams, 2237 N. 30th St., Philadelphia, Pa.
Baker-Niebuhr Co., LaCrosse, Wis.
W. G. Borland, 5726 Sherbroke St., W., Montreal, Quebec, Canada.

SAFE PRACTICES *for* FACTORY PLUMBING

Drinking Water, Wash and Locker Rooms and Toilet Facilities Recommended by the National Safety Council

In Three Parts

(Continued from Page 484 in the June 12th Issue.)

Part 3.

Workmen should not be permitted to keep oil soaked clothes in lockers as this practice has often resulted in serious fires. Many companies, especially those operating mines where the workmen's clothes become wet, now provide (for the working clothes) clothes hooks which are suspended from the ceiling and raised and lowered by means of a chain and pulley. The street clothes are then kept in lockers and working clothes suspended where they may dry out between shifts. The chain should pass through the locker where it may be fastened so that clothes cannot be lowered unless locker is opened. This arrangement is preferable to drying racks which have been used by some. Other companies provide double lockers, one for street clothes and one for work clothes.

Toilet Rooms.

Toilet rooms should preferably be connected with wash and locker rooms, separated therefrom by a solid partition reaching to the ceiling. In large plants it is necessary to provide toilet rooms throughout the works, convenient and easy of access to the employees.

Floors and Walls.

Floors of toilet rooms should be tight, smooth, and constructed of a substance impervious to moisture. Floors of tile or concrete construction are best. Floor drains should be installed to permit flushing the rooms.

Walls and partitions of toilet rooms should be of material that can be readily cleaned, and light in color to increase the illumination in the room. A wainscot five feet in height, made of enameled brick, tile or cement makes an attractive wall which can be washed down with hose stream. The cement floor should, at any rate, extend six inches up wall to make a tight wall joint.

Light and Ventilation.

All toilet rooms should be so located that they will have outside window openings. These permit good natural ventilation and also serve to light the room. Existing state laws usually contain provisions relative to the amount of window area which must be provided. In Wisconsin the requirements are 4 sq. ft. for one water closet or urinal, with 2 sq. ft. added for each additional such fixture; in New York 6 sq. ft. must be provided for one closet or urinal, and 1 sq. ft. added for each additional fixture. A skylight is the equivalent of a window if the area is equal to the required window area and has movable louvres, or if a ventilator is provided. Windows and skylights should be so constructed that they may be opened at least one-half the required area.

In addition to the windows, each toilet room which contains more than three fixtures (closets and urinals) should have a ventilating flue of incombustible material extending through the roof and fitted with proper hood. The recommended sizes for such flues are as follows:

4 fixtures— 8-inch pipe or equivalent
5 to 6 fixtures—10-inch pipe or equivalent
7 to 10 fixtures—12-inch pipe or equivalent

This provision is thought advisable because during inclement weather the windows and skylights are likely to be kept closed and some means of maintaining proper ventilation should be provided.

If the windows or skylights cannot be opened the ventilating flue should be of following size:

1 fixture — 6-inch pipe or equivalent
2 fixtures— 8-inch pipe or equivalent
3 fixtures—10-inch pipe or equivalent
4 to 5 fixtures—12-inch pipe or equivalent
6 to 7 fixtures—14-inch pipe or equivalent
8 to 10 fixtures—16-inch pipe or equivalent

The sizes given here and in the preceding paragraph are for flues where no fan is to be used. The most satisfactory means of ventilation where there are no outside windows is by local vents to each closet connected to a mechanically operated exhaust system.

Ventilators should be equipped with a damper so that in extreme cold weather they may be shut off if necessary. It is advisable to cover the ventilator opening with wire netting made either of copper, bronze or monel metal to prevent rusting; this is to keep out flies and mosquitos. Window and door openings also should be provided with wire netting. All toilet rooms should, in addition to the windows, be provided with artificial light which will adequately light the room.

Fixtures.

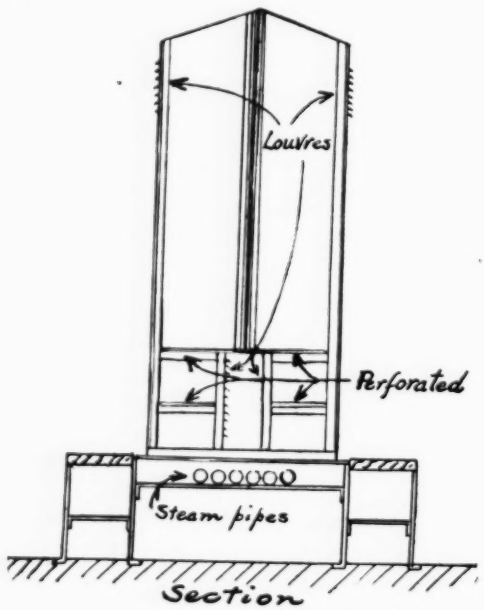
Closets: Water closets should be of the individual bowl type with individual water seal and should be made of white vitreous china or porcelain and not of enameled iron. Flush range closets which have been more or less extensively used are quite insanitary and should under no condition be installed. The seat of each water closet should be made of wood or other non-heat-absorbing material coated with varnish or waterproof paint to make it impervious to water. Seats made of enameled iron ware, porcelain or other heat absorbing material should not be used. For sanitary reasons it is recommended that the bowl be of the extended lip type and that the seat be open front and back.

There is quite a difference of opinion regarding the best flush valve arrangement. Some companies which had installed seat-acting flush valve closets now favor a type in which the valve handle is placed alongside of and convenient to the user. A valve which may be tripped by foot-treadle has also been suggested.

Where salt water is used in closets and urinals or where the water supply is apt to contain grit, a strainer should be connected to the supply line to prevent grit or dirt reaching the mechanism of valves.

One closet for each 20 employees on same shift is generally regarded to be sufficient. When only a few are employed it is advisable to increase this ratio.

Closets may be installed in single or double rows, and each should be enclosed in a stall provided with a door. Stalls should be at least 30 inches in width and distance from front of seat to door should be not less than 30 inches. Partitions should preferably be of steel construction, painted or enameled, 6 ft. in height, and 6 to 12 inches off the floor. Door should be at least 5 ft. in height and extending not lower than 12 inches from floor. Each stall should be equipped with a coat hook and a toilet paper fixture.



Courtesy, Pickands, Mather & Co.

A Locker for Wet Clothes.—The Steam Pipes are placed underneath the Lockers and a hot Air Space provided above pipes. Louvres permit the heated Air to pass from this space through the perforated Bottom of Locker and out at Louvres at Top of Door.

Urinals: An adequate number of urinals should be placed throughout the plant convenient to work places to avoid loss of time required for men to walk to the toilet rooms. One urinal for each 40 males, or fraction thereof, is considered sufficient. Wherever urinals are provided, they should be in a suitable enclosure. Provisions should be made for flushing out the rooms and keeping them in a sanitary condition. In each toilet room, urinals should also be provided, the number depending upon their convenience to workshops, and the number provided elsewhere in the plant.

Although the trough and basin urinals are used in many plants, the vertical slab (individual stall) urinals are now recognized as best. Such urinals should preferably be of porcelain, though some companies have found that very satisfactory urinals can be made of concrete, provided the correct mixture of a non-absorbing quality be used.

Urinal stalls should be at least 18 inches wide, 3 ft. 5 inches high, and 9½ inches deep, from face to back. They should not be placed nearer than 30 inches apart. Each urinal should be provided with adequate water flush arrangement to run continuously or at frequent intervals.

The floor should be smooth, impervious to moisture and sloping toward drain. If full-length stalls are used, the floor may slope toward the stalls; or, if a center floor drain for room is provided, the floor within three or four feet of the stalls should slope toward the stalls. If trough or basin urinals are used, drains should be placed below the urinals, and the floor should slope toward these drains.

Cleanliness.

Insanitary and offensive conditions will develop in wash rooms and toilet rooms unless they are always kept clean. Hot water is highly efficient as a disinfectant. To facilitate cleaning and provide means for flushing out the rooms, a hose connection to the hot water supply lines should be provided in every toilet, and in wash and locker rooms.

The frequent use of soap and water is the best way to keep rooms clean and sanitary. Even when a disinfectant is used it is better that it be added directly to the wash water; the use of a disinfectant in no case should be permitted to replace the frequent use of soap and water.

If a disinfectant is used, one should be selected which is effective in germicidal action. The United States Public Health Service Department has issued two bulletins (Hygienic Laboratory Bulletin No. 82, and Public Health Bulletin No. 42) which give much valuable information on various commercial disinfectants and their usage. The latter of these bulletins also contains information on fumigating agents and their use.

Treatment of Concrete Floors.

To make the concrete floor surface smooth and prevent dusting, a coating of paint may be applied. Before painting, the floor should first be treated with a lime-neutralized primer. An efficient primer for this purpose is said to be a solution of zinc-sulphate crystals dissolved in water—4 pounds of crystals to a gallon of water. The solution is applied to the floor with a brush and allowed to dry, then a heavy coat of prepared oil paint made with zinc and lead should be brushed well into the cement surface. A finishing coat of special gloss floor paint should then be applied.

Several other treatments for preserving the floor have also been suggested:

(a) Powdered soap may be applied, worked into a lather and scrubbed into the surface with a brush; the floor should first be thoroughly cleaned with soap and water.

(b) Magnesium fluor silicate may be applied; this penetrates the floor surface, but does not change the color.

(c) The floor may be impregnated with wax applied under heat.

(d) Boiled linseed oil thinned with gasoline may be applied; this treatment will darken the floor, and should be used only on thoroughly hardened concrete.

Acknowledgment.

This Safe Practices pamphlet was drafted by R. H. Guerrant, Safety Engineer, National Safety Council. The council acknowledges its obligation to the various state laws and company standards to which reference has been made, to those who have so kindly furnished photographs, and also to the Conference Committee of fifty safety engineers for their valuable assistance.

Los Angeles has outstripped San Francisco and become the largest city west of St. Louis during the last ten years, the Census Bureau announcement of the populations of the two cities shows. It also has outgrown Buffalo, tenth largest city in the country in 1910, as well as Milwaukee, Washington, Newark, Cincinnati and New Orleans. Los Angeles now has a population of 595,480, San Francisco 508,410.

Watch out for our Convention number—June 26th.

COMPARATIVE EFFICIENCY *of* VENTED HALF-S TRAPS *and* NON-VENTED ANTI-SIPHON, NON-SIPHONING *or* RE-SEALING TRAPS

An Exhaustive Investigation Conducted by A. E. Hansen, Sanitary Engineer, New York, for The Master Plumbers' Association of New York City

(Continued from Page 524 in the June 12th Issue.)

In 1882, Ernest W. Bowditch, C. E., and Edward S. Philbrick, C. E., of Boston, were retained by the National Board of Health to "conduct sundry experiments, to test the efficacy of various styles of traps used upon house drains under the varying circumstances and conditions to which they are subject in ordinary use, especially with a view to ascertain the liability of such traps to lose their water seal by siphon action." These experiments were conducted in the Mechanics Hall of Boston, Mass.

The apparatus consisted of vertical typical 2-inch and 4-inch stacks, extending 57½ feet above the basement floor, with branches in the basement and on the floors above, and having the upper end open 8 ft. 3 inches above the upper floor. The stacks extended down to a point 2 ft. above the basement floor, from which they turned to a slope of 2 ft. in 32 ft. The 2-inch stack was connected into the 4-inch at a distance of 5-½ ft. from the bend along the horizontal run. A 4-inch running trap and fresh air inlet were provided at the end of the 4-inch line.

Fixtures, including water closets, bath tub, and slop hopper were connected and discharged into the stacks on the various floors; branches were provided for attaching the traps under tests; trap vent pipes were installed in the shape of pipe coils laid on the floors, and the traps tested were the S, the Adee, Cudell, Bowers, and Pot or round trap. The tests are described in detail in Vol. VI, 1882, August 31st, issue of the "Sanitary Engineer."

Among the conclusions drawn by Messrs. Philbrick and Bowditch were the following:

"The ordinary S trap alone with ample air vent is therefore recommended for use under water closets, and also for all other fixtures, when its proper ventilation can be secured within reasonable limits of expense. The proper size and length of such vent pipes must be largely a matter of judgment."

"Whenever branch inlets are connected to a line of waste or soil pipe that is vertical or approaching that direction, above which branches other fixtures are used for discharging water into the same main, there is great risk of losing water from the traps attached to such branches, whenever the upper fixtures are used. No form of trap has come to our attention without special air vent which is not likely to lose water seal under such circumstances, even when the top of waste or soil pipe is open, except those, which, like the round trap are objectionable for retaining filth.

"The writer has seen them so far encumbered with grease, as to lose most of those advantages and the ability to retain water seal. We can therefore recommend with less reservation the use of a well ventilated S trap, wherever the vent pipe can be applied without unreasonable cost. The best and most simple remedy for the siphoning of traps, in most cases, is undoubtedly to be found in the introduction of air at the normal pressure at the crown of the trap.

"There is still another risk arising from change of air pressure in drains besides that of siphoning traps. The latter is the result of lack of pressure, while an excess of pressure is also to be avoided."

Experiments made by the investigators are cited, which resulted in the forcible ejection of "water and foul drain air" from a basement trap.

The National Board of Health, to whom the report was made, had as its members the Surgeon-General of the U. S. Army, the Medical Director of the U. S. Navy, the Solicitor General, medical representatives of the U. S. Marine Hospital Service and of the Army and Navy, and seven physicians in private practice from New York, Boston, Washington, Chicago, Memphis, etc.

In 1884, Arichtect J. Pickering Putnam, of Boston, Mass., claims to have been retained by the Boston City Board of Health to experiment and report on trap siphonage and evaporation. His report, as published in the 1911 edition of his book "Plumbing and Household Sanitation" is signed by himself and by L. Frederick Rice. The same report, signed by both, appeared also in the "American Architect and Building News" of June 7, 1884.

Henry C. Meyer, the well known editor of the "Sanitary Engineer", who was always vitally interested in all matters pertaining to sanitation and public health, reviewed the report in the August 7th issue of 1884, as follows:

"The paper relates at length a series of experiments made upon traps of various patterns with the author's deductions. As the deductions are at variance with those arrived at by Mr. E. S. Philbrick, member of the American Society of Civil Engineers, and Mr. E. W. Bowditch, published in these columns in the report of these gentlemen to the National Board of Health, and as it tends to show the practice of ventilating traps to be a great mistake, we have taken some pains to inquire into the nature of the investigation and the amount of weight to be attached to the deductions.

"We find that Mr. Rice was not known by the Boston Board of Health to have taken part in the investigation, nor did this Board employ Mr. Putnam for that purpose. The idea originated apparently with Mr. Putnam, who, it

seems, had invented and patented a new device for a trap and wished to test its merits as compared with other traps. He therefore applied to the Boston Board of Health, stating that he wished to make some experiments, but without mentioning that he had a patent of his own, and asked for aid in defraying the expense of necessary apparatus. The Board, wishing to make certain tests as to the efficiency of Bottle or Pot traps, offered aid to a limited extent for the sake of getting further information on this particular subject and no other, but the Board, not being personally acquainted with Mr. Putnam, told him that the experiments must all be conducted in the presence of Mr. Philbrick and Mr. Bowditch.

"These gentlemen were therefore notified and were present at a portion of the tests. But after the first test which they witnessed, they were convinced that the apparatus used was not a fair type of ordinary good practice and so informed Mr. Putnam. Mr. Philbrick also wrote him under date of January 18, 1884:

"'It seems to me that it is a very plain case that there is no practicable risk of having your new trap or either of the larger sizes of the Bottle trap lose their seal by siphon action, while new and clean, or in any condition which they are not likely to be subjected to in actual use. This being admitted, it does not seem to me of any use or of interest to the public in any way to continue the experiments in that line. In short, since we do not regard the loss of water seal in these traps when clean as their weak point, why trouble ourselves any more on such remote possibilities. Neither do I think it possible by any series of laboratory tests to develop the weak points in this class of traps, because I consider that weak point to be their liability to collect filth, with the several evils indirectly arising from such results.

I think, however, that the loss of trap water by evaporation is an important subject for investigation and will try to get up a program for that with Mr. Bowditch as requested.'

(Signed) Edward S. Philbrick.

"The Putnam report to the Boston Board of Health was submitted to Mr. Philbrick with request that they should sign it, which they declined to do for the reason that they considered that his deductions were not warranted by the results. The chairman of the Board was surprised to find that the report presented in a prominent manner the patent traps of Mr. Putnam, of which he had never heard when agreeing to assist him with money, and advised Mr. Putnam to omit all mention of that device. This suggestion was not adopted, however.

"Now while Mr. Putnam is respected so far as we can learn, as an honest and upright man, we regret that such an investigation, which might in the hands of a man without the bias of self-interest, have produced results of more value, should have been committed to any one who had an axe to grind for himself in the same connection. This certainly would not have happened, if the Board of Health had understood the fact that Mr. Putnam had a patent trap which he wished to test and bring into notice. The deductions of Mr. Putnam concerning inefficiency of ordinary vented S traps to resist loss of water by siphon action seemed to be vitiated by the fact that the apparatus he employed does not fairly represent ordinary practice. The combination is as follows:

"A vertical soil pipe over 70 feet in height without crook or offset to break the fall; near the top a Plunger water closet having a charge of 4½ gallons; 40 feet below this point a 4x4 Y branch, the inserted hub of which was capped and in the cap a 1½-inch waste pipe inserted, to the end of which the traps to be tested were successively applied. The fall of 4½ gallons passed the Y branch with such high velocity that a considerable vacuum was produced. The water seal of 1¼-inch S trap was broken after three successive discharges, although the trap was provided with a 1¼-inch vent 17 feet long. A single discharge of the water closet, while the bath waste was running, on the same floor, broke the seal of the same trap when the same vent was attached.

"Mr. Putnam used a 4x4 Y branch capped, in which cap a small waste was inserted. This peculiar joint increased the siphoning power of a passing column of water some four-fold, if not more above what it would have been with a 4x2 Y. The power of a charge falling in the vertical pipe, to disturb the water in any trap attached to the branch, past which it rushes, depends on the following elements:

"1. The volume of water passing such branch orifice.

"2. Its velocity.

"3. Size of side opening on branch.

"4. The cubic capacity of the branch itself below the trap.

"It is evident to any one who has watched such an apparatus in operation that the power to disturb the water in the trap on the branch waste arises not from the vacuum in the vertical pipe above the falling water, for the effect is made manifest before this mass of water 7 ft. or more in length has completely passed the opening and before the time has elapsed to establish communication between the air in the branch waste and that above the falling charge of water. The effect is certainly due to the air which was previously in the branch being forcibly torn out by the water which rushes past it. This action is certainly just in proportion to the size of the side opening in the vertical pipe, and this is four times as large in a 4x4 Y as it is in a 4x2 Y. But the amount of disturbance of the trap water depends not only on the degree of vacuum produced below it, but also on the volume or cubic capacity of the chamber in which such vacuum exists, i. e., on the quantity of air which it is necessary to force through the trap to supply the vacuum, and establish an equilibrium.

"The criticism we have made tend to show the importance of having all investigations of natural laws conducted by thoroughly educated physicists who are quite independent of a basis of self-interest; for, however candid a man may try to be, human nature is known to be too fallible and nature's laws too obscure to be fathomed by any but the most independent investigators."

It is unnecessary for me to further question Mr. Putnam's report. Mr. Meyer performed this task at considerable length as shown by the foregoing quotations from his periodical. I believe, however, that, before passing on to further tests, it is pertinent to look into Mr. Putnam's general scientific mental attitude on sanitary questions, as revealed in his writings. I am not surprised to find in his book previously referred to, published as recently as 1911 and entitled "Plumbing and Household Sanitation," that he is the inventor of and devotes a whole chapter of 24 pages to the description of a cast iron pipe joint made tight with "a composition which has about the consistency of fresh putty when in the condition used by glaziers, with three very important other qualities, the first being a permanent plasticity due to the combination in the substance of a special form of non-drying oil," etc. I find further that "sunlight is hostile to disease germs, but modern science has demonstrated that germs are, as we have seen, equally hostile to sewers and plumbing pipes, so that it is now known

(Continued on Page 573.)

QUESTIONS & ANSWERS

This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering," and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftsman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

VENTING A GASOLINE TANK.

Editor "Domestic Engineering":—Figs. 1 and 2 illustrate plans for the installation of a 285-gallon gasoline tank, a job which I am to do at an early date.

Which of the two plans is the best?

The only difference is in the vent pipe.

I think there would be quite a bit of evaporation, if the installation is made as shown in Fig. 1. The tank is 2 ft. below the surface of the ground.

Ohio. C. D.

We believe that Fig. 1 is the better way to vent the tank, providing there is a proper screen in the vent pipe near the top to prevent fire flashing back into the tank should somebody apply a match to mouth of vent pipe.

We do not see how the loss by evaporation can be much more in Fig. 1 than it will be in Fig. 2. The loss by evaporation is due to diffusion of the gases up the 1-inch vent pipe. There will be gas in Fig. 2 vent as well as in Fig. 1 vent. To avoid loss by evaporation in either sketch entails a check valve of some kind on the vent pipe. This should open inward to let in air when the pump is working. Another check, however, may also be applied on vent to open out to relieve pressure from expansion in case of emergency.

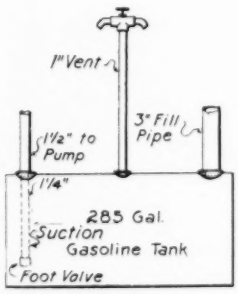


Fig 1

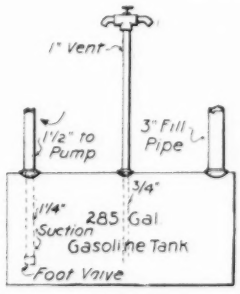


Fig 2

ON THE HEATING OF A THEATRE BUILDING.

Editor "Domestic Engineering."—I am about to install a heating plant in a theatre building, but before starting I would like to get some information.

The boiler is under the front end of the building, and the front radiators can be taken off the main in the basement, but for the radiators in the back of the building it will be necessary to run pipes up 30 ft. to attic and 60 ft. to back of building and drop down to radiators on first floor. There is then a chance to get a return pipe back to boiler below the water line.

Would it be advisable to vent the 30-ft. pipe anywhere besides at the radiator?

Will the radiator in the back of the building require more pressure on the boiler than the radiator in the front of the building?

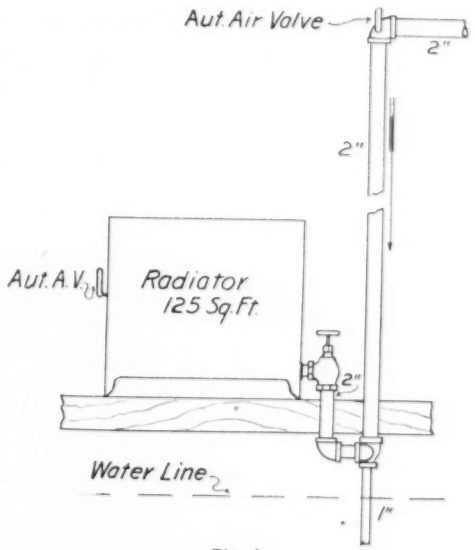


Fig. 1.

Will this method of installation work all right?

What size pipe would you advise for this long run for a 125-ft. radiator?

This is to be a gravity system.

Wisconsin. M. W.

There is no objection whatever to using an overhead supply to the radiator or radiators in the rear of the building in the manner suggested by correspondent. In fact it is a most excellent method of doing the work, and one frequently used when installing a heating apparatus in a theatre building.

Risers or steam pipes passing through the auditorium of a theatre are apt to interfere with the decorative features and otherwise are more or less objectionable. If we understand the conditions correctly the basement under the front

portion of the building is sufficiently high to allow of a steam main being installed in the usual manner but, no doubt, on account of the drop or pitch of the auditorium floor, the height of the basement under this section of the building will not permit of the installation of a steam main without getting below the water-line of the boiler, therefore, in order to supply a radiator in the rear of the building, it is necessary to run the main through the attic.

It will be well to place an automatic air valve at the end of the main at the point where the drop is made to supply the radiator. The riser to the attic should have a drip or bleeder from the bottom of it connected to the wet return.

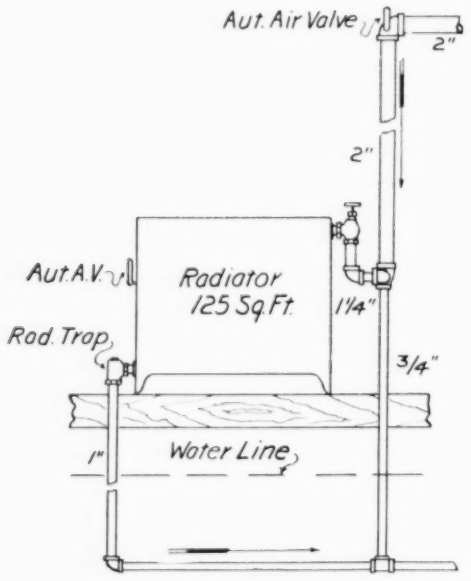


Fig. 2.

The overhead pipe should be 2 inches in size and should drop full size to the radiator connection. A 2-inch pipe will easily supply 150 to 175 sq. ft. of radiation at the end of a 200-ft. run, with a pressure drop not exceeding 1 ounce, and therefore should give good service to a radiator of 125 sq. ft. The pipe in the attic should be thoroughly covered and should pitch about 1 inch in about 12 or 15 ft. of its length toward the rear of the building.

The pressure required to fill the system depends upon the length of main, its size, the amount of radiation connected, and the amount of friction. Evidently the front main is considerably shorter than the main which extends to the rear and therefore a slightly increased pressure will be required.

There are two methods of connecting the radiator in the rear of the building, the one-pipe and the two-pipe. If the one-pipe method is followed the connection to the radiator should be 2 inches, the full size of the drop pipe, as shown by Fig. 1, and the drop supply should be dripped in the manner shown. If the two-pipe method is followed the supply valve to the radiator should be 1¼ inches and the valve on the return end 1 inch. A valve or a radiator trap can be used as desired.

We suggest that the radiator be supplied at the top as illustrated by Fig. 2. The radiator connection in either method should be taken from the drop riser by a swing joint as shown.

The next issue of "Domestic Engineering" will contain a complete report of the Master Plumbers' National Convention.

USE INSTANTANEOUS AUTOMATIC GAS WATER HEATER TO ELIMINATE COAL FIRING DURING SUMMER.

Editor "Domestic Engineering":—I have a coal tank heater connected to a 30-gallon tank, as shown in Fig. 1, herewith. We have the gas heater here, but no gas yet, and, therefore, I put in the coal heater to heat water for laundry use in summer, when the big boiler is not running.

I would like to know if connecting the small coal heater to the radiator mains would help the big boiler to heat the house, as the small tank heater heats water very readily, in fact, better than the big boiler itself. Or would you scrap the tank heater, the 30-gallon tank and the gas heater and install an instantaneous gas water heater? I am figuring on getting gas next month.

I can use the coal tank heater in our proposed garage for wall type radiators to heat garage, if it will be any good.

Ohio. K. A. B.

We advise against connecting the small coal tank heater into the hot water heating system to help the big heater. Connections of that kind are usually undesirable. The pressure of street mains may be let into the hot water heating system by such a cross connection and may overflow the expansion tank. That is only one of the probable troubles. Another is the opening and closing of valves by the owner to switch the small heater over to one or the other.

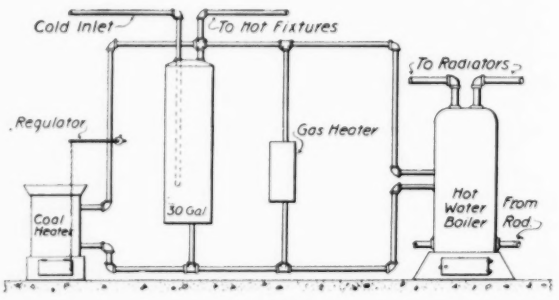


Fig. 1.

It would be far better to install a suitable instantaneous automatic gas heater when you can get the gas, and use up the present range boiler, tank heater and small gas heater on other work, as you suggest. It would eliminate all coal firing during summer.

ON FLUSHING CLOSETS TWICE TO ELIMINATE ODORS.

Editor "Domestic Engineering:"—The assertion has been made to me that a water closet flushed twice immediately after using will not give off any odor, even if the room be closed tight. I have always been under the impression that the cause of odor exists "between wind and water," and, that after the deposit is immersed there can be no odor from it. I have been familiar with closets for more than twenty-five years, but have never read or heard anything to make me think otherwise. I would be very pleased to see an expression on this subject in your valuable publication.

Ohio. J. C. Franklin.

Odors in the vicinity of closets may come from either one of at least six different sources—or from all combined.

First: It may emanate from the fæces itself before it reaches the water. In a fresh and warm condition it emits odor generously.

Second: It may be liberated from the individual himself in a gaseous form. In that state it diffuses rapidly with the air in the room.

Third: It may be produced by decomposition of the solids in a bowl which is not flushed immediately but is allowed to stand for some time. In this case, however, it must stand in the bowl a long time and the water must be comparatively warm. Such a case does not often occur in practice. nearly everybody seems to have the habit naturally or otherwise, to flush a closet promptly.

Fourth: Odor may come from the closet bowl itself if same is in a filthy condition. This matter is up to the housewife, servant, or janitor as the case may be. Modern closets are designed to minimize the liability of self-fouling, and do it perfectly with a very small attention from the attendant. Anti-septic solutions injected into the flushing water will prevent odors from the inner surface of a closet bowl. The rim and outer surface, however, must be scrubbed by hand occasionally.

Fifth: Sometimes, particularly where children use the closets, some putrescible matter will lodge on or under the closet seat. That in time will emit odor too. The seats, therefore, must also be scrubbed by hand occasionally.

Sixth: Careless people and frequently children will permit putrescible matter in the form of urine to get on the floor, which, if made of wood, will absorb the liquid, become foul and emit odors peculiar to that liquid.

If a closet does not flush properly that is to say, if its solid and liquid contents are not entirely removed with the first flush, then a second flush may help, but closets are generally used so frequently that, even if a small proportion of the liquid matter of a flush is held over to the second flush, there is no odor from it. The solution is too highly charged with fresh water to permit of emanations except after it has stood a long time unused and warm, then there may be an odor from it. In practice it is considered negligible so long as all the solids are removed and the refill is quite clear.

Correspondent uses a funny expression, "between wind and water." We know what he means and believe with him that he is correct in this respect—that is where the strongest and quickest odor comes from. Sanitary engineers have recognized that for many years. It is to remove odors from that source that local vents are employed.

HOW TO SOLDER ALUMINUM.

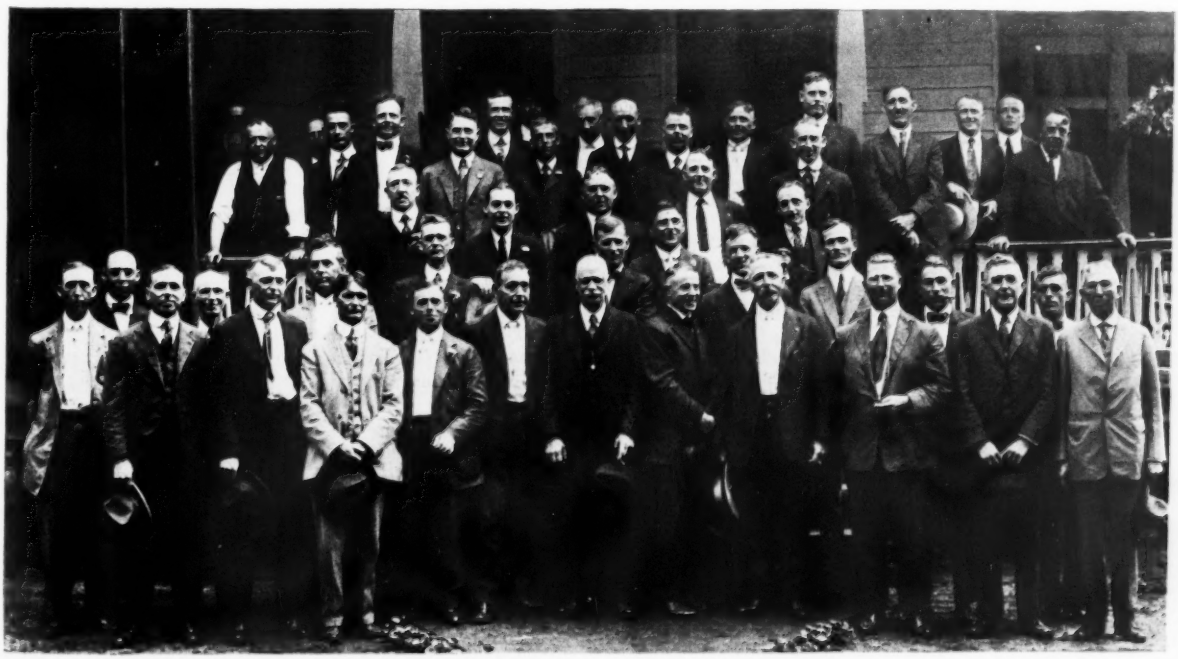
Editor "Domestic Engineering":—Will you kindly give me the best method for soldering aluminum? I have tried a number of different kinds of solder and fluxes without success and would be pleased to hear from you on this subject.

Washington, D. C. B. F.

To successfully solder aluminum you must get some aluminum solder. Ordinary plumbers' or tinners' solder will not do. You can buy aluminum solder from any reputable plumbers' supply house, or from the makers, who also furnish a special flux and instructions. Having obtained the correct solder and flux, scrape the parts to be soldered clean, as in ordinary soldering work. Heat the soldering iron till it is very hot, that is, to a low red heat, and hold it on the aluminum long enough to get the aluminum hot around the part to be soldered so that the solder may flow well. Then put on enough flux to cover the parts to be soldered and apply the aluminum solder with a hot soldering iron in the ordinary way. Use two soldering irons and change frequently to keep the seam hot. The soldering irons should be heavy—say 4 lb. each. Or, you may use a blow pipe or torch to solder with instead of an iron, if the work is adapted to the use of a blow pipe.

Aluminum solder and flux will work equally well on cast or sheet aluminum and will join aluminum to brass, copper or steel.

Joseph Vinatieri, of Yankton, S. D., will install the plumbing and heating in the new bank building to be erected for the Farmers & Merchants State Bank in that city.



Delegates and Guests Attending the Thirty-Fourth Annual Convention of the Alabama Master Plumbers' Association, Held at Selma, Ala., May 17th and 18th, as Reported in the May 29th Issue of "Domestic Engineering."

DOLAN & OLSON

Successors to the

BON TON DE LUX PLUMBING CO.

Hank and Jerry "Jarred" by Advertising Solicitor's Pointers —Jerry Secures a Heating Contract, but Refuses Sewer Job

(Continued from Page 497 in the June 12th Issue.)

Advertising Solicitor Is a Hot Sketch.

Ever since I been doing plumbing, I been getting some pretty hard knocks. We used to guard against them in days of old by wearing "plug" hats or caddies, but caddies have kind of gone out of style for plumbers and fitters, possibly because all good buildings now have man sized basements with plenty of head room in which to work, whereas in days of old, we had to work from small cellars or under houses. But still we get a few knocks all of the time. As journeymen, me and Hank didn't have to pay much attention to the anvil chorus, in fact, we didn't hear a whole lot of it because we were off the job before it was time to collect. And we didn't do much reading after hours except to run through the pink sheet for the box scores, etc. But it's different now. A fellow came into the store a few days ago, selling advertising space in a sort of a local paper. It didn't look good to me and Hank and so we tried to give this bird the gate, but he was a sticker. He talked circulation and all that kind of stuff, and finally he veered around and starts spouting about how we ought to advertise in this particular paper just to show our loyalty to certain interests claiming that these interests had always looked out for us. Well, it was news to me that anyone was looking out for my interests except myself, and so I asked him to explain further. And he sure springs a bomb. He says that it is a well established fact among certain people and organizations that the master plumbers and the journeymen have been working together for years to make bigger plumbing bills by having the journeymen purposely forget certain tools and materials so as to necessitate extra trips back and forth from the job to the shop. Won't that jar you? Me and Hank been "joiners" ever since we first smelled lard oil and you can bet your bottom dollar we never heard of anything like this, and since we been master plumbers and fitters we been trying to shorten the time per job by fitting our fellows with up to the minute die stocks and all other kinds of tools and we keep a couple of flivvers, and we even printed on our work orders this clause, "Always telephone the shop before coming in for tools or material," and when they phone in, we find some way of getting the stuff out to them. There's no use talking, people can't afford to pay plumbers and fitters for doing errand boy or delivery truck work. People never kick about the time on a job if the work is done right, but they sure do holler about that time from the shop to the job and back again.

It Pays to Use Good Tools.

Talking about tools, it looks to me like the fellows on the job lose a lot of time fussing with some tools that have been used ever since old King Solomon started work on the Temple. Lots of bosses never think of the tools and what it costs to use them. And it wouldn't be so bad either if the fellows would take a little care of them, but most of them, for instance, park their stocks and dies in the sand in the basement and in general handle them as if they had been built for that fellow Flannigan of New York to practice weight throwing with.

Jerry Gets John Hancock on the D. L.

A man just came into the store and wanted to know how much it would cost to heat a certain house and he outlined the number of rooms, size of buildings, etc., and then added that some one had already figured up the radiation, and so he gave me that figure and I heard some of the fellows talking about radiation cost per foot installed at the last boss plumbers' meeting and so I used their figures and told him that it would run about $700.00 and he says we surely must have a "trust" because that is exactly what the other fellow's bid is. Then he got to talking about details and pulled this other fellow's specification out of his pocket. Finally he wanted to know what kind of a heat regulator was included and I told him that none at all was included and that it would cost him about $50.00 or $60.00 extra and all the time he is looking over this specification and finally he shoves it over the counter and says that there is the clause about the regulator and sure enough it was there as clear as mud: "One XYZ Expansion Tank and Regulator placed in basement." And he thought that "regulator" meant a Minneapolis heat regulator. I showed him the difference, and before we parted I had his John Hancock on the dotted line for a heating plant and a heat regulator at $750.00.

One on Johnson.

A plumber friend of mine by the name of Johnson has been living in a duplex for a good many years. He owned the building and was renting one flat for $45. Well, real estate got to climbing and it looked like a good time to sell out, and so Johnson put the place up for sale and without any advertising at all it was sold and come to find out his tenant was the purchaser. Johnson had it figured out that he would become a renter at $45 per month and save money on the deal, but before the end of the first month, the new landlord came around and told him that if he wanted to stay he would have to dig up $90 per month. And Johnson is staying because houses and duplexes are just as scarce as hen's teeth.

Nothing Doing on the Sewer Job.

Some fellows have sure got a heap of nerve. One of these nervy cusses came into the store this morning and told me all about a sewer stoppage out at a house that he owned. It looked like a digging job and I told him so, and he admitted that it looked that way to him, too, but he wanted a man right on the jump and all of our fellows had gone out and so we couldn't do anything for him in the way of fire

department service, and so he makes a proposition that was a bird. He says that he will hop into his machine and run around town and see if he can pick up a plumber somewhere (you see, he knows all right that the sewer has to be dug up, but just the same he wants a plumber to run a rod through it as there may be one chance in a thousand that he might be able to open it up that way), and in the meantime if a plumber comes into the shop I am to hold him there until this bird lets me know as to what success he has been having. I asked him if he would pay for whatever time the plumber would spend waiting for his phone call and he says "nothing doing" and I says that goes both ways because there is nothing doing here either.

And another nervy cuss came into the store today. He wanted a ¾-inch malleable tee, and I picked one out of the bin and handed it to him and he says "How much?" I opened up the Price Guide that was lying on the counter, found the tee and its price and quoted it to him. Twenty-six cents. Say, that bird acted as if I was trying to take away his eye teeth. He says: "Why you must be crazy. I've bought lots of those for 7 cents apiece and now you want 26 cents. Nothing doing." And he beat it, without the tee. Checking up, it works out like this. A ¾-inch galvanized tee lists at 20 cents with a 15 per cent discount, making a net cost of 17 cents, and 50 per cent is surely little enough to add to that to cover overhead and a small profit, making a total of 25½ cents, or 26 cents, as it would have to be in the purchase of one fitting only. Of course, a fellow can buy them in some cities on the pound list, and that would make some difference. In this case, this tee would cost a trifle less than 9½ cents, so it is very evident that the fellows that are buying on the pound list are saving just about enough jack each week to keep the old flivver in gasoline and oil with a little left over for the rubber trust.

"Before we parted, I had his John Hancock on the Dotted Line for a Heating Plant."

A Scrap About Pig Iron.

Happened to be standing in the door the other afternoon and noticed a truck rolling along the street. It was an ordinary three-ton truck with a stake body and had a pretty good load of pig iron aboard, and there were a couple of pigs close to the back end that were just about ready to topple off, and, sure enough, when that truck hit the street car crossing at the corner, off dropped two of the pigs. A fellow standing on the corner hollered at the truck driver, but couldn't wake him up, and so he continued on down the street. Just then, a junk man hove in sight. He spied these pigs of iron, looked around to see if any one was coming for them and then hopped off his wagon and tried to lift one of them, and so help me Louie, he had to call on a passerby for a hand so that they could get those two pigs into the junk wagon. Well, I don't know what they weighed, nor how much that kind of iron is worth, but when they blow it into soil pipe they set us back about 7 cents per pound for it, so a couple of hundred pounds of perfectly good pig iron is not to be sneezed at anyhow. And how will it check up? The shipping clerk will swear on a stack of Bibles that the weight was O. K. when it left his place; the driver of the truck will swear that he didn't dispose of any of it and if there is any gone, it must have evaporated; and the receiving clerk at the other end of the line will know dog-goned well that is, if he is the right kind of a receiving clerk and doesn't believe everything that he sees, even if it is written on a shipping form, that he has not received all of the pig iron that the order calls for. It looks like the fine makings of a really good pig-iron scrap.

A Galvanized Iron Pipe Cinch.

And then right on top of that, I had to take one of the boys way out where the grass grows long to do a little job of plumbing and we was rambling along in the little old flivver and we come across a length of ¾-inch galvanized iron pipe lying in the street and pretty soon we come across another one, and then we found two or three in a bunch and a string of fittings and then a few more lengths of pipe and some more fittings and it looked to me like that would be a pretty good place to locate a plumbing shop. It had been raining a bit that morning and while they do say that it rains angle worms, I never did hear of it raining galvanized iron pipe and fittings. Well, I had a pretty good load on

(Continued on Page 572.)

CANADIAN SOCIETY *of* DOMESTIC SANITARY *and* HEATING ENGINEERS HOLD TWENTY-THIRD ANNUAL CONVENTION

Reports of Committees Prove Beneficial to Entire Delegation; Provincial Organization Plan Adopted; John Wright Submits Excellent Report on Sanitation and Legislation; Convention Decides to Organize T. E. B.; Harry Mahoney Elected President

A VERY successful meeting taking up for the greater part the question of Trade Extension in Canada, manufacturers' conferences, and many other pertinent trade topics, was held in the Foresters' Building, Toronto, Ontario, on Tuesday, Wednesday and Thursday, June 8th, 9th, and 10th.

Reports as submitted by the president, dealing with the present situation throughout Canada, and by the secretary, concerning the advisability of reconstruction of amendments to the constitution, were well received.

The Heating Committee's report, as submitted by Telles Latourelle, thoroughly outlined the proper requisites for a good heating apparatus, and told of the necessity of good work to uphold the name of the trade. Col. D. A. Bethune, in his report on the Ventilation Committee, laid stress on the improper ventilation of houses, in some instances, and advocated teaching the public concerning the necessity of proper ventilation. The Apprenticeship Committee's report was given by George Clapperton. He expressed his gratitude over the strides that have been taken to educate the boy in sanitation work, and urged that all masters throughout the Dominion take into their shops a boy, or boys, and give him, or them, the much needed education.

In his report on Sanitation and Legislation, John Wright, declared that any legislation preventing or hindering the health of the people, which is a question of national moment, should be immediately and effectively amended for the benefit of all. Many other subjects, including general conditions in Canada, evils of speculative building, and the proposed federal law, were also touched upon in his report.

Due to several delays, the executive committee was unable to meet in the morning, and the reports of the members of this committee were held over until the afternoon.

Afternoon Session.

The afternoon session, which was opened by President Frank R. Maxwell, of Toronto, was given over to urgent business, the first of which was the reading of the minutes of the last convention.

The President's Report.

President Maxwell thereupon read his annual report, from which a special committee made the following recommendations:

"Your committee unanimously recommends that a hearty vote of thanks be extended to our Trade Journals for the gratuitous and generous assistance accorded this Society. The President's suggestion that the trade papers be mailed to the members' home address, instead of to their places of business, should be carried out and the necessary information given to the trade representatives."—Approved.

"Re Local Associations in Montreal, we would recommend that the local of Montreal, if agreeable to its members, divide its city into sections, North, South, West and East, on the same plan as successfully operated in Toronto."—Approved.

"Re Provincial Associations, we would suggest that the methods adopted by the Ontario Province be followed as closely as possible by the other provincial associations. Your committee does not concur in the suggestion that the parent organization should be directors of the provincial organizations."—Adopted.

"Re Co-operation of the employes and employers. We are in full sympathy with the reasons given, and as regards the apprentices, we are of the opinion that the report of the Chairman of the Apprenticeship Committee should be fully debated and definite action taken then at the meeting."—This was referred to the apprenticeship committee.

"We consider that the expenses of the provincial organizations should be borne solely and entirely by the different provinces. In conclusion your committee wishes to lay special stress on the President's untiring and unselfish efforts as chief officer of the Society, we cannot too highly congratulate him on his zeal and devotion."—Adopted.

The Secretary-Treasurer's Report.

From the report of Garrett F. Frankland, secretary-treasurer, the committee recommended that the following be given cognizance:

"We recommend that the Canadian Society go on record as being the executive committee only and would suggest that the President of each Provincial association form the executive."

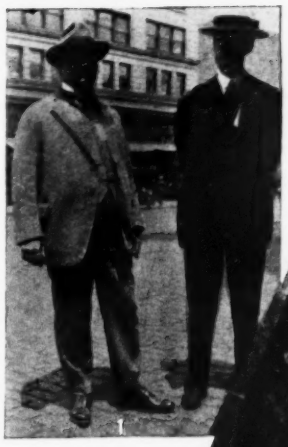
On notice of a motion, this was recommended to be taken up at the next meeting.

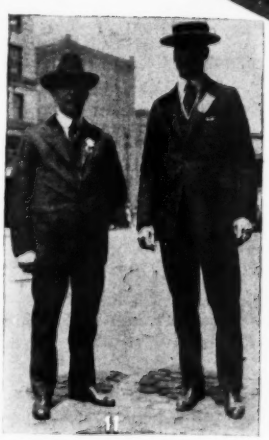
It was also recommended that clause 5 of the constitution be amended to read:

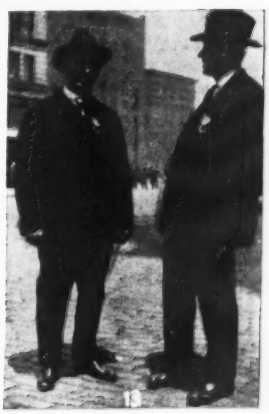
"That the Canadian Society shall consist of president, vice-president and secretary-treasurer, and the presidents of the Provincial Association. Any province may be represented by proxy."

It was further stated that any clause affected by the above amended section be made to conform.

(Continued on Page 565.)







SNAPSHOTS TAKEN AT THE RECENT ANNUAL CONVENTION OF THE HEATING AND PIPING CONTRACTORS NATIONAL ASSOCIATION, HELD IN CLEVELAND, O.

1. Charles A. Miller and T. F. Humphrys, both of the H. B. Smith Co., of Westfield, Mass.—2. Left to right: E. F. Glore, General Sales Manager; W. D. Harris, T. I. Rankin, J. Ketchum, William Speakman and C. McKinney, all of the Abram Cox Stove Co., of Philadelphia, Pa.—3. F. E. Herendeen, of Geneva, N. Y., and R. B. Flershem, General Manager of Sales, American Radiator Co., Chicago.—4. A Portion of the New York State Contingent.—5. A Few Ladies from New York State Attending the Convention.—6. Elias D. Smith, Oldest Heating Contractor at the Meeting.—7. C. Schneider, New York City; Daniel J. Rice, New York City; W. J. Walsh, Chicago, and A. E. Welker, Cleveland.—8. C. E. Hodges, Vice-President of the Utica Heater Co., Utica, N. Y.—9. Left to right: F. L. Bunton, A. F. Hern, James Doherty and C. E. Hodges, all of the Utica Heater Co., Utica, N. Y.—10. A Group of Prominent Officers and Members of the Association.—11. Frederick J. J. Weider of Rochester, N. Y., and J. B. Dill, of the American Blower Co., Detroit, Mich.—12. Left to right: W. G. Le Compte, Jenkins Bros., New York City; Samuel Wright, Buffalo, N. Y., and Edmund Grassler, Milwaukee, Wis.—13. Frank S. Leach, of Chicago, and Joseph G. Hayes, of Indianapolis.—From "Domestic Engineering" Photos.

AMONG THE WHOLESALERS AND MANVFACTVRERS

THE SUMMER MEETINGS OF CENTRAL SUPPLY ASSOCIATION AND EASTERN SUPPLY ASSOCIATION.

Held at Niagara Falls, Ontario, Canada, Both with a Good Attendance. Profitable Joint Meeting One of the Main Features.

The Central Supply Association held its summer meeting, its eighty-third regular meeting, on Wednesday, June 9th, at the Hotel Clifton, Niagara Falls, Ontario, Canada. Considering the distance which many had to travel, the attendance was most excellent, 125 being personally in attendance.

E. W. Sanborn, of the Commonwealth Brass Corporation, Detroit, was oppointed sergeant-at-arms, and L. C. Huckins, of Jarecki Manufacturing Co., Erie, Pa., was the official recorder.

Jarecki Mfg. Co., of Erie, Pa., was elected to membership.

In the report of the Executive Committee two matters of general interest were discussed:

First, a tendency of country banks to charge excessive fees on collections. The members were advised that the Advisory Board of the Federal Reserve Bank were considering this self-same subject, and were now at work on a plan to establish uniform charges of this character.

Second, the question was also considered of a revised nomenclature which should more clearly distinguish between merchant pipe made of soft steel and genuine wrought iron pipe made from puddled iron. A menace to the stability of the trade, both affecting manufacturers and wholesalers, was the tendency in certain sections of the country on the part of promoters to enlist the contracting plumbers and heating men in co-operative supply and manufacturing concerns. It was the unanimous sentiment that this tendency should be curtailed and discouraged.

The action along this line taken by the Tennessee Association of Master Plumbers was heartily commended, namely:

That plans or schemes to organize or incorporate any league or organization of master plumbers and heating men for carrying on a plumbing and heating supply business or the manufacture of any goods used by plumbers or steamfitters is unalterably opposed and that they should do all in their power to discourage or break up any such movement.

At the conclusion of the morning sessions, which were held separately—of the Central and Eastern Supply Association—a buffet luncheon was served to the members and their guests, after which joint sessions of the two associations were held.

The summer meeting of the Eastern Supply Association at The Clifton, Niagara Falls, Ontario, Canada, on June 9th, was characterized throughout by earnestness of purpose on the part of members and a desire to be of real service during this unusual period. Addresses and remarks were made by a number of the members, all of them of a helpful and progressive nature.

The following concerns were elected to membership upon recommendation of the Board of Directors:

International Heater Co., Utica, N. Y.
Mason-Hansen Co., Inc., New London, Conn.
Powhattan Brass & Iron Works, Ranson, W. Va.
Richmond Fdry. & Mfg. Co., Inc., Richmond, Va.
Fred H. Rounds Supply Co., Portland, Me.
Sands Mfg. Co., Cleveland, Ohio.
Stack Heater Co., Boston, Mass.
Young, Klotsch & Appel, Inc., Baltimore, Md.

Resolutions Adopted.

The following resolutions were unanimously carried:

1. Resolved: That your Board of Directors recommend that the sincere thanks of this Association be extended to our Trade Investigation Bureau Committee for the report of its findings respecting the affairs of the Bureau ascertained on its recent visit to Evansville, Ind.

2. Resolved: That we recommend to the favorable consideration of the Association, the work of the National Standardization Bureau, and we hereby suggest that our Standardization Committee continue its work in co-operation with said Bureau.

3. Resolved: That your Board of Directors recommend that manufacturers be requested to bring their terms of sale into conformity with our operative resolution, namely: "2 per cent off if paid within 10 days from date of invoice, 30 days net."

The Joint Meeting.

The convention was called to order by President Joseph F. Evans, of the Eastern Supply Association, and subsequently the gavel was turned over to A. B. Pierce, president of the Central Supply Association.

One cannot omit the mention of a monologue artist from Wilkes-Barre, Pa., whose witty recitals enlivened the opening minutes.

This was followed by remarks by Chairman Pierce, after which a very able address was delivered by Robert S. Binkerd, secretary to the president of the Association of Railway Executives, New York on the "Present Railroad Situation."

The next topic was the Trade Extension Bureau, ably presented by Secretary-Manager William J. Woolley. Close attention and applause followed this address.

Clarence V. Kellogg, president of the National Bureau of Standardization, outlined in a few brief remarks the aims of the Bureau and what had been accomplished up to the present time.

He was followed by George H. Drake, of Buffalo, a member of the Standardization Bureau of the National Association of Master Plumbers.

The balance of the session was devoted to remarks by both manufacturers and jobbers from different sections of the country, giving briefly a summary of production in the different lines of supplies and business conditions affecting the wholesalers.

The advantage of a joint session so thoroughly appealed to those present that a recommendation was made and unanimously carried that the respective associations consider the advisability of holding such gatherings biennially. Over 250 participated in the afternoon session.

The Attendance.

The Central Supply Association was represented as indicated in the following list, where no name is given the representation was by proxy:

Algoma, Wis.—Plumbers' Woodwork Co., S. H. Newman.

Anderson, Ind.—May Supply Co., James S. May.

Atlanta, Ga.—General Supply Co.; Lowry Co.

Barberton, Ohio.—Pittsburgh Valve & Fittings Co., John F. Hoig.

Birmingham, Ala.—Jefferson Plumbers & Mill Supply Co., Stockham Pipe & Fittings Co.

Bloomington, Ill.—The Kelser-VanLeer Co.

Buffalo, N. Y.—W. A. Case & Son Mfg. Co., C. W. Fell.

Burlington, Wis.—Burlington Brass Works.

Bushnell, Ill.—Bushnell Pump Co.

Cedar Rapids, Iowa.—Cedar Rapids Pump Co., Chas. L. Kidd; Chandler Pump Co.

Chattanooga, Tenn.—The Cahill Iron Works.

Chicago, Ill.—W. D. Allen Mfg. Co.; American Radiator Co., A. K. Root, D E. Kennedy, F. R. Mason; A. M. Byers Co., Cephas Taylor, Jr.; Chicago Granitine Mfg. Co.; Chicago Nipple Mfg. Co., Dixon C. Williams; Chicago Pottery Co., A. M. Maddock, H. S. Maddock; The Davies Supply Co.; Federal-Huber Co., W. P. Yoose; The Goulds Mfg. Co.; Hammond-Byrd Iron Co., Wm. M. Byrd, Jr., P. H. Neal; Henion & Hubbell; Hoelscher Bros.; Hoffman Specialty Co., Geo. D. Hoffman; Illinois Malleable Iron Co., J. R. Steneck; International Heater Co., D. E. McCabe; Kellogg-Mackay Co., C. V. Kellogg; Kewanee Boiler Co., J. P. Dugger; Modern Iron Works, Chas. W. Badger; The Nye Tool & Machine Works; H. S. Raymond, F. A. Raymond, K. S. Lyons, Edward T. Pierce, W. F. Jones; Reading Iron Co., W. M. Thompson; Richardson & Boynton Co., Mr. Roys; J. J. Ryan & Co.; Spang, Chalfant & Co., Inc., J. A. Purdy, Jr.; Steel & Tube Co. of America, Frank P. Neal; United States Radiator Corporation, H. N. Booth; Walworth Mfg. Co., C. W. Watson, Geo. F. Galliver; Weir & Craig Co.; Western Plumbing Supply Co.; Whitney & Ford; S. Wilks Mfg. Co., H. M. Sedgwick; Wolff Mfg. Co., W. T. Brace.

Cincinnati, Ohio.—John Douglas Co.

Cleveland, Ohio.—Republic Brass Co.; Hiram Rivitz Co., Hiram S. Rivitz; The Welker Supply Co., Adam Welker.

Columbus, Ohio.—Columbus Supply Co., Jos. V. Falkenbach; Plumbers & Factory Supply Co., J. G. Potts; Scioto Valley Supply Co.

Dayton, Ohio.—The Dayton Supply Co., J. J. Abel; M. J. Gibbons Supply Co., M. J. Gibbons, Jr.; Philip Haas Co.; Kuhns Bros., Harry B. Kuhns.

SNAPSHOTS TAKEN AT THE JOINT MEETING OF THE CENTRAL SUPPLY ASSOCIATION AND THE EASTERN SUPPLY ASSOCIATION AT NIAGARA FALLS, ONTARIO, CANADA.

Top Row, left to right: J. S. Nicholl, Riverside Boiler Works, Inc., Cambridge, Mass.; George Moore, Detroit Range Boiler and Steel Barrel Co., Detroit, Mich.; W. P. Yooss, Federal-Huber Co., Chicago; W. C. Noble, Murphy Supply Co., Green Bay, Wis.; standing, J. J. Abel and H. Abel, both of Dayton Supply Co., Dayton, O.; seated, W. B. Bryar, Bailey-Farrell Mfg. Co., Pittsburgh, Pa.; C. F. Meyer, Iron City Sanitary Mfg. Co., Pittsburgh, Pa.; H. E. Harper, E. W. Wise, W. J. Howard, and L. C. Mitchell, all of J. B. Wise, Inc., Watertown, N. Y.

Second Row, left to right: Wm. B. Maddock, of John Maddock & Sons, Trenton, N. J.; Wm. Schulmerich, L. O. Koven & Bro., Jersey City, N. J.; seated, Cecil Heap, Wm. Heap & Sons, Grand Haven, Mich.; B. O. Tilden, American Sanitary Works, Trenton, N. J.; H. F. Meyers, Detroit Brass Works, Detroit, Mich.; F. A. Curtis, Shur-Tite Mfg. Co., Cleveland, O.; C. J. Moody, also of Shur-Tite Mfg. Co.; Ben Noble, Capitol Brass Works, Detroit, Mich.; P. J. Frey, Central Supply Co., Minneapolis, Minn.; standing, R. A. Griffin, Reading Iron Co., Reading, Pa.; J. D. Purdy, Jr., Spang, Chalfant & Co., Pittsburgh, Pa.; N. Bowland, A. M. Byers Co., Pittsburgh, Pa.; seated, E. J. Mishler, Reading Iron Co., Reading, Pa.; T. L. Lewis, A. M. Byers Co., Pittsburgh, Pa.; W. C. Chamberlain, Standard Sanitary Mfg. Co., Pittsburgh, Pa.

Third Row, left to right standing: Elkins Smith, L. Berglas, Wm. Colin, Dick Lane, Henry Greenberg, Scoop Goeke, Trenton, N. J.; H. C. Tabler, D. & T. Mfg. Co., St. Louis; seated, George Hoffman, Monument Pottery Co., and John A. Moore, Sanitary Earthenware Specialty Co., Trenton, N. J.; W. S. Chilmann, McRae & Roberts Co., Detroit, Mich.; T. E. O'Brien, Leader Iron Works, Decatur, Ill; Mr. and Mrs. William Savill, Thomas Savill's Sons, Philadelphia, Pa.; Mr. and Mrs. Ralph Kelley and Ralph Kelley, Jr., L. B. Brass Co., Peabody, Mass.—From "Domestic Engineering" Photos.

Decatur, Ill.—Leader Iron Works, T. E. O'Brien.

Des Moines, Iowa.—Globe Machinery & Supply Co.; L. H. Kurtz Co.

Detroit, Mich.—Commonwealth Brass Corporation, N. A. Henwood; Detroit Lubricator Co., H. I. Lord; Detroit Range Boiler & Steel Barrel Co., Geo. A. Moore, E. W. Sanborn; Detroit Sanitary Supply Co., Harry Verbeek; Detroit Valve & Fittings and Detroit Brass Works, H. Romeyn Smith, H. F. Meyer, F. L. Uhl; A. Harvey's Sons Mfg. Co., Ltd., James Harvey; The Kimball-Eisenberg Co.; The McRae & Roberts Co., W. S. Chilman; Michigan Plbg. Supply Co., Edw. F. Klein; Murray W. Sales & Co.; The Sterling & Skinner Mfg. Co., R. R. Sterling, F. E. Skinner; United States Radiator Corporation, E. E. McNair; Walker Mfg. & Supply Co.

Dubuque, Iowa.—Kretschmer Mfg. Co.

Eau Claire, Wis.—W. H. Hobbs Supply Co.

Dallas, Texas.—Momsen-Dunnegan-Ryan Co.

Minneapolis, Minn.—Central Supply Co., P. J. Frey; The D. M. Gilmore Co.; Roberts-Hamilton Co.

Muncie, Ind.—Geo. Keiser & Co.

Muskogee, Okla.—Atlas Supply Co.

Newark, Ohio.—The Universal Supply Co., J. F. VanVoorhis, R. Clay VanVoorhis.

New Orleans, La.—Manion & Co.; Plumbing & Mill Supply Co., Inc.

New York, N. Y.—Central Foundry Co., B. A. Schutz; Richmond Radiator Co., P. H. Seward; John R. Wettstein.

Omaha, Neb.—Omaha Sanitary Supply Co.; United States Supply Co.

Peoria, Ill.—Kinsey & Mahler Co.

Phoenix, Ariz.—J. H. Mulrein Plumbing Supply Co., J. H. Mulrein.

Pittsburgh, Pa.—Bailey-Farrell Mfg. Co., W. B. Bryar; A. M. Byers Co., N. Bowland, Fletcher Collins; Central Tube Co., W. F. Ingals; Iron City Sanitary Mfg. Co., C. F. Meyer; Jones & Laughlin Steel Co., E. J. Dickson; Wm. B. Scaife & Sons Co., F. W. Peters; Spang, Chalfant & Co., Boyd Watson; United States Sanitary Mfg. Co., Frank G. Newton.

SNAPSHOTS TAKEN AT THE JOINT MEETING OF THE EASTERN SUPPLY ASSOCIATION AND THE CENTRAL ASSOCIATION AT NIAGARA FALLS, ONTARIO, CANADA.

Top Row, left to right: A. J. Kehoe, Ohio Brass Co., Mansfield, O.; F. F. Myers, Hays Mfg. Co., Erie, Pa.; W. T. Jameson, Ohio Brass Co., Edward Hammann, J. L. Mott Iron Works, Trenton, N. J.; R. A. Tate, Utica Plumbing Supply Co., Utica, N. Y.; C. A. Peck, J. L. Mott Iron Works; W. T. Ingalls, Central Tube Co., Pittsburgh, Pa.; George H. Laib, Laib Co., Louisville, Ky.; F. M. Clymer, Becker Mfg. Co., Marietta, O.—Bottom Row, left to right: W. T. Brace, Wolff Mfg. Co., Chicago; F. F. Bulkeley, Thomas Maddock's Sons Co., Trenton, N. J.; H. E. Pursell, Kewanee Boiler Co., Kewanee, Ill.; O. P. Benjamin, Capitol Brass Works, Detroit, Mich.; R. R. Sterling, Sterling & Skinner Mfg. Co., Detroit, Mich.; E. W. Sanborn, Chicago.—From "Domestic Engineering" Photos.

Erie, Pa.—Hays Mfg. Co., F. J. Reed; Jarecki Mfg. Co., L. C. Huckins.

Evansville, Ind.—Never-Split Seat Co.

Fort Dodge, Iowa.—Leighton Supply Co., J. C. Wilson.

Fort Wayne, Ind.—The P. & H. Supply Co.

Grand Haven, Mich.—William Heap & Sons, L. C. LaFleur.

Grand Rapids, Mich.—Ferguson Supply Co., Ltd.; Richards Mfg. Co., O. Richards; Wolverine Brass Works.

Green Bay, Wis.—Murphy Supply Co., W. C. Noble.

Greenville, Ohio.—The Treaty Co., Geo. F. Taylor.

Houston, Texas.—Keithly Co., J. P. Keithly.

Hutchinson, Kan.—Wilson Wholesale Plumbing Co.

Indianapolis, Ind.—Central Supply Co.; Jackson Supply Co.

Joplin, Mo.—Plumbers Supply Co., Geo. E. Cooke.

Kalamazoo, Mich.—Bond Supply Co., Fred J. Bond; Kalamazoo Sanitary Mfg. Co., E. V. Brigham.

Kansas City, Mo.—Kansas City Pump Co.; U. S. Water & Steam Supply Co.; W. B. Young Supply Co., Geo. H. Gorton.

Kenosha, Wis.—Frost Mfg. Co., O. H. Theleen.

Kewanee, Ill.—Kewanee Boiler Co., H. E. Pursell, J. C. Walton.

La Crosse, Wis.—La Crosse Plbg. Supply Co.

Lincoln, Neb.—Cornell-Searl Co., J. L. Tupper.

Mannington, W. Va.—Bowers Pottery Co., E. W. Sanborn.

Mansfield, Ohio.—The Barnes Mfg. Co., T. R. Barnes; Hughes Supply Co., Geo. H. Hughes; Ohio Brass Co., W. T. Jameson.

Marietta, Ohio.—Becker Manufacturing Co., F. M. Clymer.

Marshalltown, Iowa.—Fisher Supply Co.

Milwaukee, Wis.—B. Hoffmann Mfg. Co.; Hoffmann & Billings Mfg. Co., E. F. Niedecken; Robert Rom Co.; Rundle-Spence Mfg. Co.; Windsor Mfg. Co.; Wisconsin Plumbing & Heating Supply Co.

Portsmouth, Ohio.—The Standard Supply Co.; Whitaker-Glessner Co., O. L. Neudoerfer.

Quincy, Ill.—E. Best Plumbing & Heating Supply Co.

Reading, Pa.—Reading Iron Co., E. J. Mishler.

Rockford, Ill.—Rockford Brass Works, J. H. Ryerson.

Saginaw, Mich.—Morley Bros., Frank E. Congdon, T. M. Warren.

Salem, Ohio.—National Sanitary Mfg. Co., Geo. M. Snyder.

Salt Lake City, Utah.—Joseph Nelson Supply Co., Joseph Nelson.

Sioux Falls, S. D.—Plumbing Supply Co.

Springfield, Mo.—Harry Cooper Supply Co., H. Cooper, Wm. W. Carnagey, Jr.

St. Joseph, Mo.—The Bristol Co.

St. Louis, Mo.—American Foundry & Mfg. Co., J. C. Sanders; John C. Kupferle Foundry Co., John P. Woods, W. C. Ehrhardt; N. O. Nelson Mfg. Co., A. B. Pierce.

St. Paul, Minn.—Cochran-Sargent Co.; Crane & Ordway Co.; Union Brass & Metal Mfg. Co., P. J. Frey; Western Supply Co.

Sturgis, Mich.—Morency-Van Buren Mfg. Co.

Tampa, Fla.—Coates Plbg. Supply Co.

Terre Haute, Ind.—Frank Prox Co.

Toledo, Ohio.—The American Plumbers Supply Co., H. A. Schlingman; Joseph F. Grosswiller Co.

Trenton, N. J.—American Sanitary Works.

Union City, Ind.—Knapp Supply Co.

Wabash, Ind.—Honeywell Heating Specialty Co., J. C. Teague.
Watertown, N. Y.—J. B. Wise, Inc., L. C. Mitchell.
Waukegan, Ill.—Northern Brass Mfg. Co., C. S. Johnson.
Wausau, Wis.—Wisconsin River Supply Co., V. Atherton.
Wheeling, W. Va.—Trimble & Lutz Supply Co.; Wheeling Sanitary Mfg. Co.; Wheeling Steel & Iron Co., C. R. Elliott.
Wichita, Kan.—Martin Metal Mfg. Co.
Youngstown, Ohio.—Standard Sanitary Mfg. Co., Jobbing Division, H. B. Leach; Youngstown Sheet & Tube Co., G. W. Bostwick, W. E. Watson, R. E. Lawlor.

THE SPRING MEET OF EASTERN TRADE GOLF ASSOCIATION.

The Eastern Trade Golf Association opened its 1920 season with the spring tournament at Gedney Farms Golf Club on Tuesday, June 8th. It was ideal golf weather, and members used the course to a great advantage. The usual medal play for the morning tournament and the afternoon foursome constituted the day's play. The tournament committee was profusely showered with congratulations upon its selection of the day, for after the tedious experience of last year with wet meets the splendid weather of last week's tournament was welcomed. The course, too, was in fine shape and everyone was enthusiastic to make a record.

Gene Conroy, assistant sales manager of the New York office of the Central Tube Co., made his debut at the tournament with a complement of selected tools and liked it so well he made two rounds.

All in all, the meet was the best held by the association in a long time.

An excellent dinner at the club house followed the day's sport. President W. M. Cosgrave, presided and was hailed enthusiastically as host of the day.

The prize winners were

Medal play: M. Readey, first, cuff links; S. L. Greason, second, golf balls; E. S. Aitkin, third, Panama hat; C. G. Fundinger, Consolation, book.

In the best ball foursome Jos. Geoghegan and W. Staples each received a carving set. .

The medal play scores follow:

	Gr.	Hcp.	Net
C. G. Witherspoon	122	20	102
J. B. Garfield	83	0	83
Chas. Geoghegan	119	30	89
J. Barnum	112	34	78
S. L. Greason	107	30	77
W. Staples	98	18	80
G. Campbell	110	12	98
M. Readey	92	15	77
W. T. Gilmour	110	15	95
J. S. Weaver	99	20	79
E. S. Aitkin	92	14	78
D. C. Chaddock	101	8	93
L. S. Rothwell	96	12	84
S. J. Cutting	118	20	98
J. C. McDonald	107	20	87
F. W. Broatch	94	10	84
D. H. Roney	98	18	80
R. B. Hunt	107	18	89
Geo. M. Scott	105	20	85
F. J. Oliver	112	16	96
A. S. Armagnac	91	7	84
W. L. Fleisher	105	18	87
R. A. Wolff	101	10	91
G. E. Sly	94	12	82
E. L. Strickland	103	12	91
L. Powers	91	6	85
R. G. Bookhout	144	36	108
T. M. Kellogg	144	36	108
F. F. Cooper	119	27	92
L. H. Harvison	111	24	87
J. E. Adams	100	20	80
C. S. Wood	112	24	88
E. R. Downe	110	18	92
J. G. Geoghegan	111	22	89
W. M. Cosgrove	132	27	105
C. G. Fundinger	170	36	134
M. M. Root	116	25	91
L. M. O'Neil	126	25	101
A. Purnell	111	25	86
E. F. Conroy	156	36	120

Cards were not turned in by the following:

W. A. Burtenshaw
H. J. Reeves
T. M. Cochran
L. A. Kelly
H. Townsend
B. W. Bennett

SPEAKMAN COMPANY'S EMPLOYES HOLD EIGHTH ANNUAL OUTING.

Over eight hundred picnickers, representing its three hundred employes and their families, celebrated the eighth annual outing of the Speakman Company, of Wilmington, Del., on Saturday, June 12th. Following last year's departure from the usual schedule of trolley ride and inland picnic grove the committee again arranged for a delightful excursion. The steamer "Thomas Clyde," which the company had chartered for the day, left the Municipal Pier at 8.30 o'clock in the morning with all on board. Four hours down the Delaware River and Bay brought the crowd to St. Augustine Beach where the remainder of the day was spent in sports and games, bathing and dancing. The day was warm,

The Landing of Speakman Co.'s Picnic Party at Augustine Beach.

but the merry throng knew nothing of the sweltering city. Ice cream, pop and dancing were the order on board the "Thomas Clyde" and the bracing air during the sail down the historic bay whetted appetites so that upon arrival at St. Augustine the merry makers laid siege to the grove tables, and hundreds of basket luncheons were spread.

Luncheon over, the program of field sports was tackled by the athletic enthusiasts, and bathing and dancing for the less strenuously inclined.

The stranger guest on the outing could not but be impressed with the family-like nature of the big party. It was indeed one big family. Employes, owners and former employes. The latter may always be seen at the Speakman outing, for no matter where fortune takes them, Speakman is always their alma mater, and the outing party always includes them. There are only a few former employes, for long and continued service is the rule at the Speakman plant. This is the answer to the success of the company.

The return trip to Wilmington was started at 5 o'clock and another delightful sail formed the last lap of a splendid and successful day.

Harry E. Speakman, treasurer of the company; W. A. Speakman, president; A. V. Gemmill, secretary; James Fraser, superintendent of factory; John C. Sinclair, manager of the supply store, and their families were among the executives of the company present.

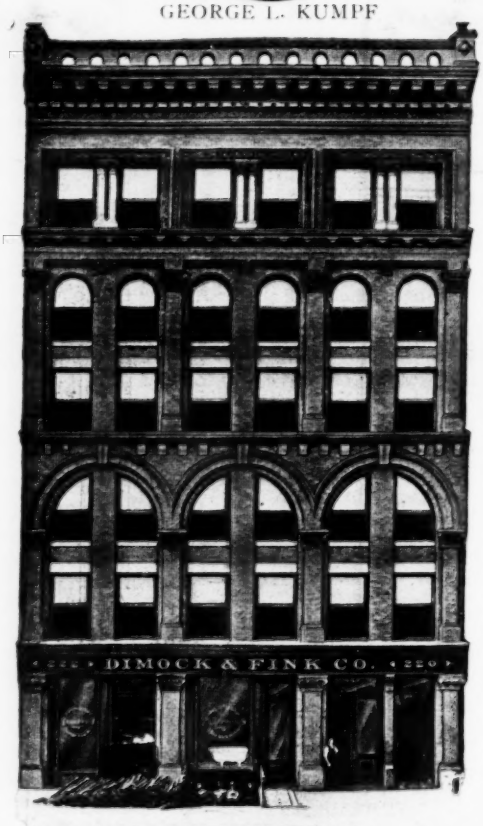
The committees in charge of the outing were: Chairman of Committees, S. T. Lunbeck. Reception: H. E. Speakman, Addie Williams, J. C. Sinclair, Charles Page, Florence Carlin, Anna Gerstenberg, Neal Drury, J. B. Copes, Marie Brannan. Sales: H. Williams, F. Righter, J. Haney, J. Bergstrom, George Sneath, Elmer Cox, James Green, J. Loughridge, C. Wiberg, J. Keely, J. Byer, S. T. Lunbeck, and Mrs. Smerdon. Amusements and Sports: P. Solomon, H. Baylis, Elmer Cox, E. Pearson, J. Worth, D. Peters, Jr., and William Montgomery. Purchasing: N. P. McClees, H. Williams, and P. Orth. Transportation: J. Fraser, F. E. Warrington, and A. V. Gemmill. Prize: Louise Moore, Addie Williams, E. McLean. Music: Jos. Haverbeck, E. B. Adams, and S. T. Lunbeck. Badge: Ellen Ashby, M. Johnson, and Elsie Finan. Printing: George Wooters and D. Smith.

ALBERT ALTMAN

GEORGE L. KUMPF

EDWARD RENSHAW

STEPHEN C. BREIHOF



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GEORGE DOHN

CHARLES ENGLERT

STEPHEN BASSFORD

WILLIAM R. ROYAL

CARL HENZEL

CARL JUST

CHARLES LIEBIG

BARRY MENDELSOHN

WAREHOUSES
1944-1946 PARK AVENUE, MANHATTAN

WAREHOUSES
151-153-155 EAST 128th STREET, MANHATTAN

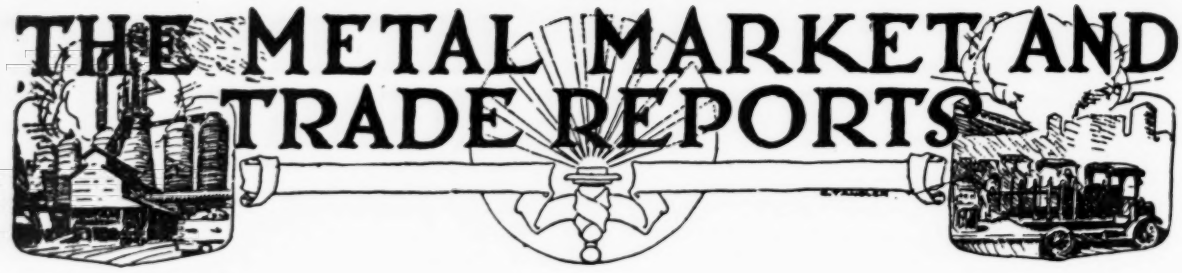
26-28 ROSE STREET, NEW ROCHELLE, N. Y.

15 SOUTH 6th AVENUE, MOUNT VERNON, N. Y.

S. W. COR. 168th STREET and 3rd AVE., BRONX

when writing **advertisers.**

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

There has been such an increase in steel production since the latter part of April that the present rate is within 5 per cent of the rate obtaining last March, the heaviest since October, 1918, the last full month of war hostilities. The monthly report of the American Iron and Steel Industries indicates that during May steel ingots were produced at the average rate of about 41,050,000 gross tons a year, while April had shown an average rate of about 37,550,000 tons, March holding the record since 1918 with a rate of 45,200,000 tons. Production in the fore part of April was not greatly affected by the rail strike, while in the third week of the month production it went down to 34,000,000 tons a year or less. In view of the May production it may be taken that the present rate is 43,000,000 tons a year or more.

The billet market continues practically stagnant, while there is only occasional interest manifested in sheet bars. Sheet mills, moderately well covered for the time being by mill orders, are more interested in getting deliveries than in making fresh purchases. The last sale in Pittsburgh was July and August Bessemer bars at $75, and the market is quotable at $75 to $80 for sheet bars, with billets nominal at $60 to $65. A large amount of sheet bars has been piled up. As to the stocking of billets, that has been done also, but chiefly by way of mills accumulating such billets as they are to use in their finishing mills, so that in general the mills now stocked will not get into the market at all.

Shipments of tin plate have shown a big improvement, following the suggestion from Washington to the railroads that better car supplies for the tin plate mills would be the proper thing at this time. Shipments have been made out of stock at some of the plants that were idle, and at the working mills a 75 per cent shipment was achieved, while they operated at from 50 to 60 per cent of capacity.

The sheet market is distinctively quiet. Nothing is heard of cancellations, following reports recently of several cancellations on the part of the automobile trade. Following the decline in prompt prices there is now a little sagging in price deliveries in the moderately nearby future. Better delivery sheets are considered responsible for the easier tone in the market, as production is now averaging between 80 and 90 per cent of absolutely full capacity, with shipments approximately equal to production. Little inroad has been made on the large tonnage piled up at mills that were affected by the rail strike.

Reports are to the effect that the Interstate Commerce Commission will grant the carriers' petition to allow an increase in freight rates, and while this action is likely to increase the cost of steel products to consumers and producers' cost of operation, the feeling is general that the industry will benefit since the traffic situation would be considered on a better working basis with adequate compensation to the roads, particularly in increased competency. While some shipping interests were opposed to a 30 per cent increase in freight rates, others appearing before the commission advocated the approval of the carriers' demands. Such action, it was said, is essential if the efficiency of railroad transportation is to be maintained and the production of the industries moved to consuming centers.

Some of the steel works are now piling up pig iron; while able to operate their blast furnaces fairly well, they cannot operate their steel works in full on account of the finished steel congestion. As to the merchant blast furnaces, they have better car supplies now and are making fairly good shipments. The demand for prompt lots has fallen off on account of the improved shipping. Furnaces are more or less behind in their deliveries, and even the few, who may not have been fully sold up, on paper, for the current half year, will have to carry some shipments over into the second half. A moderate tonnage of second half iron was sold some time ago. Prices for pig iron are quoted as follows:

No. 2X Philadelphia	$47.35@$49.35
No. 2 Southern, Birmingham	42.00@ 44.00
No. 2 Buffalo	45.00@ 46.00
No. 2 Chicago	43.00@ 45.00
Basic Valley, furnace	43.50
Bessemer, Pittsburgh	44.50

Copper.

Confirming the quiet tone of the market, an agency in New York of one of the leading producers of copper in the country stated last week that the outlook in the trade is better than it seemed. Sales may be small, but the statistical position of copper is strong, and continued steadiness is looked for. Labor and financial difficulties as well as railroad congestion and shortage of fuel and freight cars are primarily responsible for the stagnant copper market. But the consumers' buying movement for third quarter is now overdue and may be opened any day. Additional inquiries are coming in the market for third quarter, and it is expected the 19¼ cents price quoted for August may be extended to September.

Tin.

Prices for tin closed the week in strong tone at 49c for nearby and 48½c a pound for forward delivery, and for shipment from the Straits, 48¾c for all positions. The good consumers demand early in the week fell off some at the end, but numerous inquiries indicate continued business this week.

Lead.

Lead closed the week quiet but strong, as there seems to be an increasing scarcity of the metal, indicating that a larger demand for prompt delivery would tend to make the market stronger. Consumers are not active buyers and the only business done by sellers at this time is on dealers' demands for small lots. Leading operators continue to quote 8½ cents New York, and 8.25 cents East St. Louis, but in some circles it is said this price is maintained to effect a reduction in the ore market and that it is not a selling basis. The open market is nearer 8.90 cents, New York, and an advance by the producers' interests would not surprise the trade.

Spelter.

The market for spelter is stagnant and trading is not showing any particular interest. Prices are quoted at 7.50 cents for nearby and 7.55 cents for later delivery. Consumers are indifferent and additional price strength is not looked for.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum (in 50-ton lots)	33 cents per lb.
Antimony (Chinese and Japanese)	9½ cents per lb.
Solder, No. 1	38 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying	Selling
Copper, heavy	14¾ to 15 cents	16 cents
Copper, light	13 to 13¼ cents	14¼ cents
Brass, heavy	9 to 9¼ cents	10¼ cents
Brass, light	7¼ to 7½ cents	8½ cents
Brass turnings	8½ to 8¾ cents	9¾ cents
Lead, heavy	7½ to 7⅝ cents	8⅝ cents
Tea lead	5 to 5¼ cents	6¼ cents
Scrap zinc	5¼ to 5½ cents	6½ cents
Solder joints	9 to 11 cents	12 cents
Mixed babbitt	10 to 12 cents	13 cents
Composition turnings	13¼ to 13½ cents	14½ cents
New brass clippings	10½ to 11 cents	12 cents
Tin foil	30 to 35 cents	36 cents
Cast aluminum	24½ to 25 cents	26 cents
Cocks and faucets	12 to 12½ cents	13½ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

Heavy yellow brass	10½ to 11 cents	12 cents
Brass, light	9½ to 9¾ cents	10¾ cents
Brass borings	14 to 14½ cents	15½ cents
Brass turnings	9½ to 10 cents	11 cents
Red brass	15 to 16 cents	17 cents
Copper, crucible	16 to 16¼ cents	17¼ cents
Copper, heavy	15 to 15¼ cents	16¼ cents
Copper, light	13 to 14 cents	15 cents
Lead, heavy	7¼ to 7¾ cents	8¼ cents
Tea Lead	5¼ to 5½ cents	6½ cents
Zinc	5 to 5½ cents	6½ cents
Solder joints	10½ to 11 cents	12 cents
New aluminum clippings	25 to 26 cents	27 cents
Cast aluminum	23½ to 24 cents	25 cents
Block tin pipe	45 to 47 cents	48 cents
Tin foil	37 to 38 cents	40 cents
Mixed babbitt	7½ to 8 cents	9 cents

NEW CONSTRUCTION WORK.

The following are among the most important contracts recently awarded, as reported by "The American Contractor":

$2,500,000. Office building, Hartford, Conn. Travelers Insurance Co.

$1,000,000. Power plant, Jackson, Mich. Consumers Power Co.

$388,179.28. Highway construction, Smith county, Tyler, Tex.

$300,000. Bank and office building, Cleveland, O. Cleveland Trust Co.

$170,000. Road, Logan, W. Va. Board of Logan County Commissioners.

$103,932. State highway, Providence, R. I. State Board of Public Roads.

$135,000. Factory, Cleveland, O. Falls Rubber Co.

$300,000. Paving of various streets, Bellaire, O. City.

$150,000. Hotel, Kansas City, Mo. Keystone Hotel Co.

$250,000. Grading and paving, State Highway, Frankfort, Ky.

$400,000. Corroding houses, office and boiler room, St. Louis, Mo. Eagle-Picher White Lead Co.

$300,000. Building, Milwaukee, Wis. Milwaukee County Board of Administration.

$200,000. Office building, Chicago, Ill. Joseph S. Ryerson & Son.

$250,000. Apartment houses, Chicago, Ill. Standard Steel Car Co.

$800,000. Residence, New York City. Col. E. H. R. Greene.

$400,000. Factory, St. Louis, Mo. Crunden-Martin Mfr. Co.

$5,000,000. Bank, Kansas City, Mo. Federal Reserve Bank of Kansas City.

$100,000. Garage, Cleveland, O. The Guarantee Building Co.

Obituary

JOHN TRAINOR CALLED BY DEATH.

John Trainor, Baltimore, Md., past-president of the National Association of Master Plumbers, a well known convention goer, and one of the most prominent master plumbers in the country, died at his country home, "The Maples," from apoplexy on Wednesday, June 9th, in his sixty-sixth year. Mr. Trainor was born near the city of Monaghan, County Monaghan, Ireland, on September 12, 1854. He was most successful in the plumbing business in Baltimore and executed many notable contracts. Besides being prominent in plumbing association circles, he was active in national and local building organization and Catholic fraternal activities. During the war Mr. Trainor was an able and conscientious worker in Baltimore. Mr. Trainor first became prominent in plumbing association activities in 1886, when he was elected vice-president of the National Association at the Deer Park, Md., National Convention. He was re-elected the following year at Chicago, and at the sixth convention, June 26, 1888, at the Boston convention, he was elected president. He also served the National Association as a director for many years. The funeral took place on Saturday, June 12th, 500 friends attending, the floral tributes being most magnificent. Delegations from national and local associations were present to pay honor to Mr. Trainor's memory, among them the Baltimore Master Plumbers' Association, the Cumberland, Md., association, the Washington association, headed by Walter D. Nolan, while Isaac Brown and Frank Fee, New York, William H. Doyle and William McCoach, Philadelphia, J. G. Weldon, Pittsburgh, and R. J. Welch, Lowell, Mass., represented the National Association, and their local organizations.

James P. Carney.

James P. Carney, who for many years conducted a plumbing business at Bar Harbor, Me., died recently in California. He moved out there about a year ago.

John J. Dower.

John J. Dower, engaged in the plumbing business at Hartford, Conn., since 1905, died at his home in that city on May 30th after a brief illness. He was a past-president of the Hartford Master Plumbers' Association. He is survived by his widow.

Oscar L. Mabie.

Oscar L. Mabie, superintending engineer for the Illinois Malleable Iron Co., Chicago, died in his office in the company's plant on Thursday, June 10th, in his sixty-seventh year. He was overcome by heat and expired before a physician arrived.

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

The Alcock Plumbing & Heating Co., 128 East Twenty-second Street, has secured the contract to install the plumbing and heating in the remodeled section of the Trinity Episcopal Church at Twenty-Sixth Street and Michigan Avenue.

W. E. McCarthy, 4703 Addison Street, has the contract for the installation of plumbing in the new $25,000 church and school building that is to be erected at Addison Street and Laverne Avenue for the St. Bartholomew Roman Catholic Church.

Phillips-Getschow Co., 130 West Kinzie Street, and Alfred Jones, 3025 East Ninety-first Street, are to install the heating and plumbing, respectively, in the $100,000 office building that is to be erected for John Mohr & Son, at Ninety-sixth Street and Calumet Avenue.

L. H. Prentice Co., 330 Sherman Street, is to install the heating in the remodeled section of a two-story residence in Geneva, Ill.

J. J. Cahill, 830 Hamlin Street, Evanston, has been awarded the contract to install plumbing in three $12,000 residences and garage to be erected for Thomas Carely at Orrington Avenue and Ingleside Place, Evanston.

C. W. Johnson, Inc., 644 Washington Boulevard, has been awarded the contract to install heating in the new $200,000 four-story junior high school addition that is to be erected soon for the Oak Park High School Board, at Ontario Street and East End Avenue, Oak Park.

A. Mourant, 4318 Cottage Grove Avenue, will install the plumbing system in the $50,000 printing shop addition for the Goes Lithographing Co. at 42 West Sixty-first Street.

Mortimer & Ryan Co., 25 East Jackson Boulevard, has secured the plumbing contract, and Kehm Bros. Co., 15 West Kinzie Street, have been awarded the heating contract on the $400,000 passenger station, freight depot and boiler house that is to be erected for the Illinois Central R. R. at Centralia, Ill.

Morris Katz, 714 West Taylor Street, will install the plumbing in the $40,000 two-story store, office and loft building that is to be erected for M. Charniss at 3442 Roosevelt Road.

Frank Kveton, 3250 Twenty-sixth Street, has the contract for the installation of plumbing in the $25,000 furniture store and garage building at 2717 W. Twenty-second Street.

The Show Window of Johnson Bros., at Champaign, Illinois.

Other Cities in the State.

Sullivan Bros., Quincy, have secured the contract to install the plumbing in the $95,000 community high school that is to be erected in Augusta, Ill., for the Board of Education of that city.

A four-story and basement hospital is to be erected at Waukegan at a cost of $300,000. The owner, the Waukegan Hospital Board, is taking bids at the present time.

Indiana

Indianapolis and Vicinity.

Contrary to expectations no settlement was reached this week between the striking plumbers and their employers at Indianapolis, and nothing has transpired to indicate that a settlement might be expected soon. When the agreement between the master plumbers and the steamfitters was reached last week reports were generally circulated to the effect that the striking plumbers would probably accept the same terms immediately. Several conferences were held, but nothing was done one way or the other. The Indianapolis plumbers have been on strike since April 1, and since that time only a small amount of plumbing and heating work has been done.

Freyn Bros., 31 West Michigan Street, Indianapolis, have been awarded the contract for the installation of plumbing and heating systems in the new $600,000 motion picture theater and store building that is being erected on North Pennsylvania Street, between Washington and Market Streets, Indianapolis, for Marcus Loew, of New York.

Terre Haute.

The total cost of building construction work in Terre Haute during the month of May was twice that of May, 1919, and three times as much as that during the month of April, 1920. Eighty-four building permits were issued, twenty-seven of which were for new work and 57 for repairs and alterations. The total cost of construction work was $110,464, of which $89,700 was for new work and $20,764 for alterations.

Other Cities in the State.

May's building totals at Hammond dropped far below the March and April figures, according to the monthly report of the city building commissioner. Only eighty-one permits on property valuation of $335,470 were taken out. Fifty-eight of these were for the erection of new buildings. March was the banner month, 124 permits, at a total cost of $619,395, being issued. The high cost of building material and the present wage scales in the building crafts were ascribed as the propable reasons for the slump during May.

Records for building permits in the office of the city clerk at Newcastle show that building fell very low during the month of May, as compared with the same month of 1919. The same number of permits, ten, were issued for the two months, but the valuation this year was $10,200 and last year it was $22,500.

Harry Schreiner, Elkhart, has secured the plumbing contract on a new two-story school building that is to be erected in Concord township, near Elkhart. The heating contract was awarded to the Reich Heating Co., of Elkhart.

The Liege Heating & Ventilating Co., of Auburn, has received the contract for the installation of a heating system in a new school building at Harlan, Ind.

The heating and plumbing contracts on the new foundry and office building to be erected at Hammond, Ind., for the Union Railroad Equipment Co., of Chicago, have been awarded to J. Poroak, of Hammond.

The firm of Tibbets & Adkins, of Union City, has been awarded the contract for the installation of plumbing and heating systems in the new $50,000 freight depot that is to be erected at Muncie, Ind., for the C., C., C. & St. L. R. R. Co.

Willard Warstler, Goshen, will install the plumbing and heating in the new $40,000 school in Wolcottsville.

Pennsylvania

H. G. Bressler, Wilkes-Barre, is installing the plumbing in a large wholesale house being erected for Kainofsky Bros., and the plumbing and heating in a four-family apartment building being built for H. Fernbell.

The Durkin & Davis Co., Taylor, has secured the contract to install the heating in the new Taylor High School. The plumbing system in the bathhouse for the swimming pool in the same school is also to be installed by this firm.

Some of the Members of Harrisburg Committee of Entertainment at Pennsylvania Master Plumbers' Recent Convention in That City.—From "Domestic Engineering" Photo.

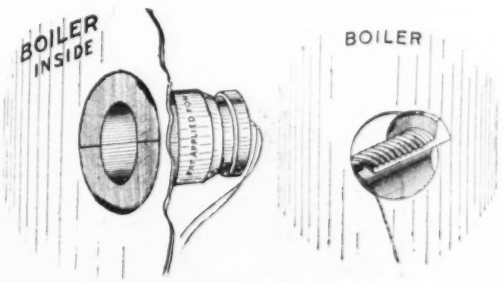
N. J. Austin, Wilkes-Barre, has opened a plumbing and heating shop at 210 Stanton Street, that city, and is busily engaged in repair and jobbing work.

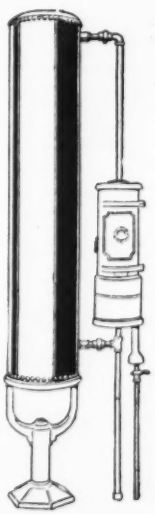
Wm. M. Logan and H. B. McClure, of Harrisburg, Pa., President and Secretary, Respectively, of the Pennsylvania Master Plumbers' Association, and Three of Their Co-Workers at the Recent Convention in Harrisburg.—From "Domestic Engineering" Photo.

Ideal Boiler Spud

Put an end to water heater installation troubles!

The Ideal Spud provides a means for readily connecting a gas heater to a boiler. Takes less time and material to install. No need to disturb old pipes. Assures a water tight, air tight, steam tight connection. Insures a cleaner and better circulation. Pipe fitting can be standardized. Makes a neat appearing job.





Two exclusive features of our spud—the full and complete flange which holds spud from inside of boiler and bronze washer which shapes itself to conform with surface of boiler. Makes an ideal connection.

To install a water heater with Ideal Boiler Spuds, drill two holes in side of boiler—one near top and one near bottom. We furnish a special Ideal Drill for this purpose.

Take both halves of Spud and drop in sideways, at same time holding string. Then draw up one at a time into place so that stems of Spud extend from hole. Slip over bronze expansion washer and then screw up coupling, which gives you a water-tight, compression-tight connection.

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SIMCO
STEEL WATER HEATER
Coal, Gas or Oil Fired

A double-shell water heater, having two-inch water space between the shells. Electrically welded. Brass plugs, registering with the ends of each tube, are located in the outer shell, giving ready access to tubes for cleaning and repairs. Any tube can be replaced without disturbing another. Handholes are provided for clean out purposes.

Made up complete ready for installation. Tested at 175 lbs. pressure for 100 lbs. working pressure.

The SIMCO Heater occupies less floor space than a cast iron construction for equal service. It is adaptable for a number of uses.

Write for literature

The Sims Company

ERIE, PA.

"We keep others in hot water"

Massachusetts

William I. Ryan, of 42 Sidney Street, Lowell, has been named by Mayor Perry D. Thompson as plumbing inspector to fill a vacancy caused by the death of Stephen Garrity. Mr. Ryan stood second on the civil service list, the first man being Mr. Moynihan, who did not care to accept the place. Inspector Ryan has been employed by the R. L. Speirs Co.

The plumbing business of P. H. Lederer, one of the oldest establishments in the trade at Holyoke, has been taken over by the firm of Cunningham & Bowers. The latter concern is composed of James C. Cunningham and David C. Bowers, the former having had 16 years' experience with the firm of E. H. Friedrich Co., while the latter has been in the business for 18 years. The new firm is located at 508 Hampden Street.

E. C. Kelly Co., of 195 Center Street, Roxbury, has the contract for installing a plumbing system in the Margaret Fuller school on Glen Road, Jamaica Plain.

O'Toole Bros. Co. is the name of a new corporation formed at Clinton, to deal in hardware, plumbing and heating specialties, with an authorized capital of $10,000. The officers are John B. O'Toole, president; Bruce Babcock, treasurer, and B. D. Babcock, secretary.

The contract for installing new plumbing in the Abby W. Hay school in Boston has been awarded to Kelley & Gaffey at their bid of $12,800.

Ohio

Cleveland and Vicinity.

June has brought a more acute situation in the building industry, and consequently reflecting back into the plumbing trade. Shortage of basic materials, notably lime, plaster and cement, threatens to slow up the entire building trade. Much construction already is held back for lack of these materials.

More important even than this condition, in the opinion of leaders in the plumbing industry, is the sudden disposition of labor in the plumbing trade to demand exorbitant wages. In an effort to avert discord, at a special meeting of representatives of both the master plumbers and the journeymen an offer of an increase was made, and this, according to leaders in the plumbing contracting business, was turned down. A further attempt to settle the dispute will be made at a meeting of the directors of the Associated Plumbing Contractors of Cleveland.

Further effort to stimulate the building of houses among the individual operators has been started by the housing bureau under the direction of the mayor himself. A special department will be organized according to this plan, whereby certificates will be issued to prospective home builders. This will be a means of guaranteed deliveries of material, earliest consideration for obtaining loans from the banks, and first call upon labor. The move will be augmented, according to the promise of railroad officials located here, who indicate they are willing to set aside a number of cars with which to transport key materials, such as lime, plaster and cement, from the producing points adjacent to Sandusky and to the Cleveland consuming market.

Meanwhile prices for all building materials continue high, and this factor, combined with the high cost of labor, which still seems on the increase, are working against a large amount of building at this time. Regardless of the fact that prices seem to be on the down grade in other lines of industry in commerce, even in the Cleveland district, which is the last to succumb to this reactionary move, plumbing materials remain high. The belief is advanced by the best informed plumbing contractors here that this condition in the plumbing supply and material field will continue until such time as jobbers begin to cancel their orders—and no such condition is in sight at this time. The fact of the matter is there is sufficient construction under way to require much

more material and supplies than are available at this time, in the opinion of A. R. Maskell, of the Maskell-George Co., as well as other leading contractors.

In any event, until the dispute between the journeymen and the contracting firms affected by the demands for higher wages has been settled, there will be little if any new work sought by the contracting interests, plumbing interests assert.

An early meeting of the building code committee of the council is expected by plumbing interests here, at which time revision of the plumbing code will be discussed. The part the plumbing contractors have in this move has already been taken, as previously noted in these columns. At that time the associated plumbing contractors agreed that while any attempt to cut costs of installation would be desirable, it also would be unfeasible at this time. It is pointed out that there is a certain method to be observed in installation of plumbing, and even though this might be altered, it would hardly tend to reduce the cost, as labor and materials are apparently to remain at their present level indefinitely. It was largely along this line that the report of the plumbing interests was submitted at the time the code was returned to the building code committee, it being the consensus of opinion that the plumbing code is still as satisfactory as it can be to both the trade and the public.

Kentucky

Louisville and Vicinity.

The G. W. Uhl Plumbing Co., Harlan, has been incorporated with a capital of $3,000, by E. D. Pollitte, G. W. Uhl and E. M. Scott, to do a general heating, plumbing and gas-fitting business.

Tom L. Johnson picked up a nice contract for large plumbing installations in the new plant of the U. S. Foil Co., on Grand Street. This contract including a large toilet room.

M. J. Duffy & Sons Co. has a plumbing contract on additions to the plant of the Southern Veneer Mfg. Co., at 22 and Standard Avenue.

Carl Althaus, Louisville, has a nice plumbing contract for work on the plant of the Louisville Milling Co., which is adding a large recreation room.

Joe A. Roehrig has the plumbing contract on a duplex apartment for G. A. Gernart, at 1970 Deer Park, Louisville.

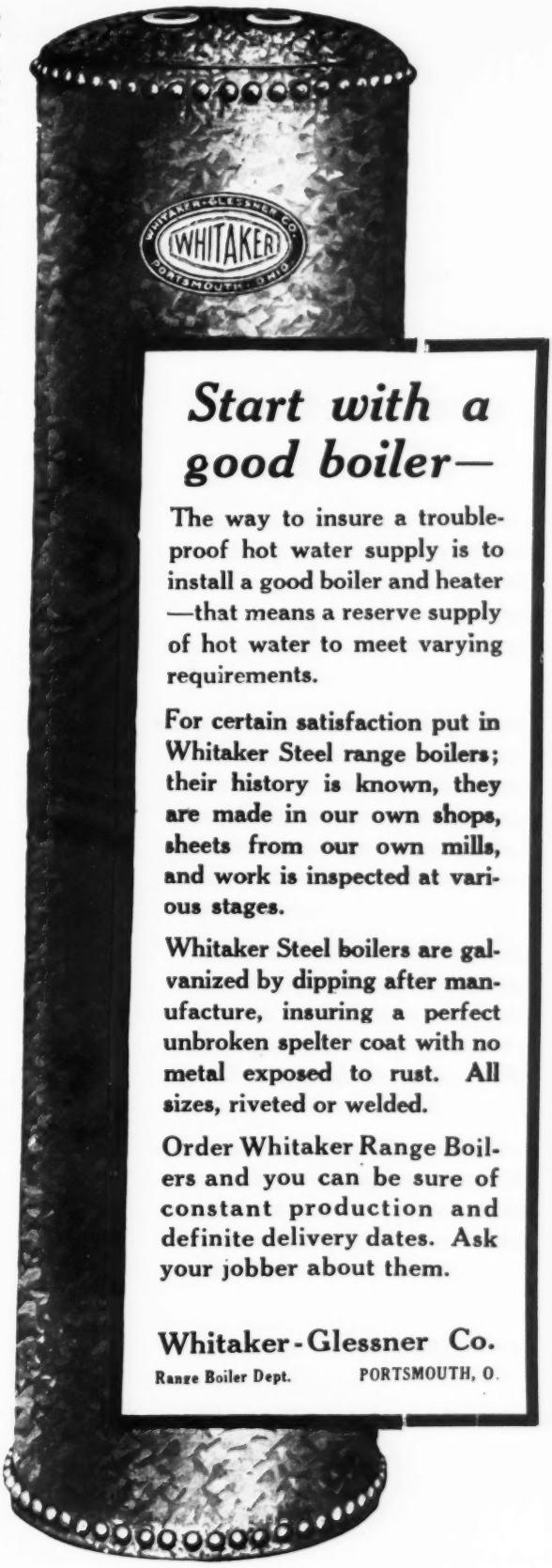
Missouri

St. Louis and Vicinity.

Shortages of supplies, delay in Building projects and uncertain price conditions, which are responsible for a general apathy on the part of contractors to assume large projects, have all contributed to make the last few weeks hard ones for St. Louis in the plumbing field. Much work is going begging, and the number of contractors bidding on each job is smaller than it was in years past. More construction is going on now than since the start of the season, and plumbing contractors are beginning to arrange their season's schedule. It is predicted that the end of this season will see a rush of business as never before, with investors willing to pay anything to get work done.

A large steam heating contract will be let soon in connection with the erection of a twelve-story mercantile building at Eleventh and Locust Streets, by the Block Realty Co. The project is costing $1,000,000. Architects Mauran, Russel & Crowell, with offices in the Chemical Building, prepared the plans.

The Sodemann Company has been awarded the contract to install two heating boilers in a large apartment hotel building being erected at 5307 Delmar Boulevard by J. Hill, 915 Olive Street. The plumbing contract has not been announced. Over $12,000 is involved in the heating contract. The Sodemann Company was also awarded a contract to install a heating boiler costing $3,500 in a building at 3515 Olive Street, of which R. W. Walsh is the owner. The Sodemann Company has been one of the most active in the competitive bidding field this season.



Start with a good boiler—

The way to insure a trouble-proof hot water supply is to install a good boiler and heater —that means a reserve supply of hot water to meet varying requirements.

For certain satisfaction put in Whitaker Steel range boilers; their history is known, they are made in our own shops, sheets from our own mills, and work is inspected at various stages.

Whitaker Steel boilers are galvanized by dipping after manufacture, insuring a perfect unbroken spelter coat with no metal exposed to rust. All sizes, riveted or welded.

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Whitaker-Glessner Co.
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Install a shower over every built-in tub

It's no longer the three piece bath-room since people generally have become familiar with the advantages of the shower—Since they appreciate that the shower is the clean way to bathe—That the water is always fresh and drains off instantly.

Now its the four piece bath-room with the shower over the tub or set in a stall.

When this Speakman 952½ Shower is set over a built-in tub the end and side of the tiled bath-room are used in connection with a side and front curtain to make an ideal shower compartment. It adds the final touch to a well equipped bath-room.

Go after this shower business. The Speakman national campaign will help you.* Besides, we'll send you some well illustrated folders that will aid you to get it. Tell us how many you need.

Speakman Company
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SPEAKMAN SHOWERS

* Follow the Speakman national shower campaign. The advertisement which appears in the June 19th issue of The Literary Digest features the 952½ shower. In the June 26th issue of the same publication the 895 shower is featured. These advertisements go into nearly a million and a half homes and are seen by 5,000,000 persons.

Plumbing and heating contracts in connection with the erection of a mercantile building for the Trinity M. E. Church, at Thirteenth and Tyler Streets, are about to be let. A. G. Nolan, Times Building, who has been awarded the general contract, is receiving bids on subcontracts. The structure will cost $53,000.

The James Anderson Plumbing Co. has been awarded a contract to install a plumbing system in a $35,000 mercantile building being erected at 52-56 Vernon Avenue.

A comparatively large amount of sewer work, both private and public, is being done in St. Louis at this time. Deliveries on sewer pipe in St. Louis and vicinity is good, due to the lamentable fact that St. Louis manufacturers for some time have been unable to move out of town shipments to any great extent. Those firms which are fortunate enough to get their incoming materials have their yards filled with pipe.

Mississippi

T. J. Holmes, Natchez, is to install the plumbing in the new Elks Club building in Natchez, and in two other residences that are to be erected in that city in the near future.

Butchart & Phelan, Natchez, have recently completed the installation of plumbing in the Elite Machinery building, and have secured the contracts to install the plumbing in a residence and apartment building to be erected there.

Oregon

Portland and Vicinity.

Amendments to the city building and plumbing codes of Portland, to facilitate construction of inexpensive homes in the city, have been placed in concrete form in a report recently submitted to the city's "small homes committee." The aim of the amendments is to place a minimum of requirements upon persons who desire to build their own homes, and the "small homes" campaign has for its objective the erection of 1,500 additional houses in Portland, to cost about $1,000 each. It is asked that the plumbing code be amended: "To allow the use of standard cast iron pipe and fittings in a one-story dwelling, and amended so that it will not be necessary to connect gutters and rain water leaders to the sewer, but that it be permitted that such connection may be to a dry well or to the curb running under the sidewalk, and amended so that the re-venting of the water closet will not be required when such water closet and small fixtures such as a sink or lavatory are close together, and are connected into a 4-inch stack." A cesspool for such a building may be constructed with a minimum diameter of 3 ft. in place of 4 ft. now required in the plumbing code.

The Maughn Heating & Plumbing Co., Portland, recently received the contract for installing plumbing and heating in the garage building to be erected at Tenth and Salmon Streets, at a cost of $20,000.

Plans prepared by architects Sutton & Whitney, Lewis Building, Portland, for the county hospital building, have been approved by the Multnomah County Commissioners, and bids will be received shortly.

The De Temple Plumbing Co., Portland, received the contract for plumbing in the one-story garage building to be erected on Eighth and Flanders Streets.

The School Board, of Astoria, rejected all bids submitted for the proposed new gymnasium, the bids being considered unduly high. Bids for plumbing and heating were submitted by: W. S. Fleming, Portland, $9,331; W. C. Laws & Co., Astoria, $9,488; W. N. Smith, Astoria, $9,524.

The Sisters of St. Joseph, Bend, will immediately construct the first unit of the proposed $200,000 hospital to be built in that city. The first unit will cost $50,000, and plans for the structure will be completed at once by Architect Lee Thomas, of Bend.

Architect Edmund Bergholtz, Spalding Building, Port-

land, is preparing plans for a hotel building to be erected at Corvallis for a syndicate headed by C. O. Lauritzen, of Portland. The hotel will be three stories, 75x100 ft., contain 110 guest rooms, and will cost about $350,000.

In an effort to get contractors connected with the building trades to make a nominal charge for figuring all contracts, Portland and Astoria have formed branches of the American Contractors' Association. The Astoria branch, the last formed, has elected J. L. Burgess temporary president and C. Rohaut, temporary vice-president. G. C. Pauling is the temporary secretary-treasurer.

Washington

Seattle and Vicinity.

Building activities in Seattle have been seriously hampered by a general strike called recently by the Building Trades Council, to eliminate open shop conditions. The question of wages or hours does not enter into the controversy, the Trades Unions desiring only to eliminate the present open shop conditions under which all of the Master Builders' Association work is being done. The test of the strength of the strike, it is admitted by both sides, probably will not come for some weeks, inasmuch as most of the work now being done does not call for the services of the members of the well organized special trades, such as plumber, sheet metal workers and electricians.

Plumbing contractors, however, assert that the strike will practically paralyze their activities, if continued. Many projects slated for an early beginning have been, or will be, indefinitely postponed, in view of the uncertainty of labor. The Union officials have not called men off a job where all union help is employed, but only where non-union men are also working.

The strike is particularly unfortunate at this time, as building activities had shown a sharp increase in the past ten days, as compared with the past two months. Prospects early in the year for a record-breaking season in new construction, had not materialized, due to a depression throughout all lines of business, and a somewhat general belief that lower prices might be expected. The past ten days, however, had noted a slight drop in building material prices, particularly lumber, and scores of dormant projects had been brought to life. The month of May set a new record in building, the total value of the permits issued for new construction running close to $2,009,000, despite the fact that there were but few large undertakings started.

The Seattle School Board has announced that until the district can raise more money by sale of school bonds, already voted, no more contracts for the erection of new school buildings will be awarded by the School Board. The Board is now negotiating with the state for the sale of more than $3,500,000 of bonds voted, but not yet issued.

All bids for the Richmond Beach High School structure to be erected were rejected by the School Board, and new bids will be called for after plans have been revised. The low bid for general contract was that of F. F. Mowat, Seattle, for $26,275. Thirteen bids for the heating with the low bid being that of D. H. King, 214 Columbia Street, Seattle, for $4,659. Of the ten bids submitted for plumbing, the University Plumbing & Heating Co., 3939 Fourteenth Avenue, N. E., submitted the lowest, $1,726.

W. D. Allen, Stuart Building Seattle, on his bid of $4,625, has secured the contract for the installation of plumbing and heating in Fire Station No. 7 to be erected in that city.

Several important plumbing and heating awards were made during the past week by the Seattle School Board, the largest of which were those on the Highland Park School. The plumbing contract was awarded to the King Plumbing & Heating Co., 214 Columbia Street, on a bid of $15,725. The contract for heating and ventilating was secured by the University Plumbing & Heating Co., 3939 Fourteenth Avenue, N. E., on a bid of $32,565.

Matheson Bros. & Newcomb, Lyons Building, have completed plans for eight new modern residences to be built at a total cost of $75,000. The houses will contain from six to ten rooms, with modern plumbing, and hot water heating plants. Sub-contracts will be let in the near future.

Architects Baker, Vogel & Evans, Pacific Block, are pre-

711 711

Because they Serve Better

Fig. E

Fig. D

THERE is a lot of real truth behind that statement.

Designed with practical knowledge of the conditions of drainage this trap will meet with, "711" is, unquestionably, the most satisfactory trap of its kind offered.

Our new Booklet is a source of information you should have within reach—at all times. May we send it?

ESSEX FOUNDRY
NEWARK, N. J.

Fig. C

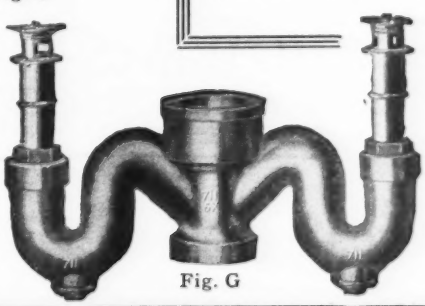


Fig. G

MAKING WATER RUN UP HILL

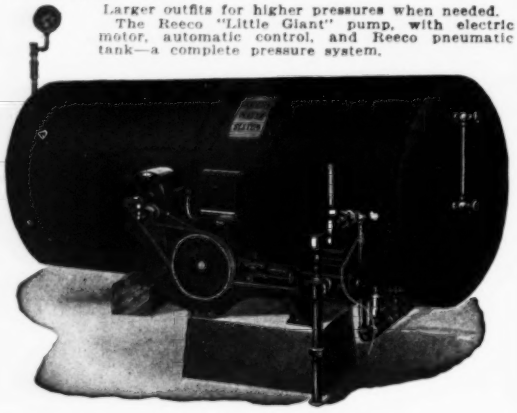
is easy when an up-to-date automatic

REECO WATER SUPPLY SYSTEM

is installed. With a pressure of 50 pounds in the Reeco pneumatic tank, the water will "run up hill" to an elevation of about 117 feet.

Larger outfits for higher pressures when needed.

The Reeco "Little Giant" pump, with electric motor, automatic control, and Reeco pneumatic tank—a complete pressure system.



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Money Back in 10 Days If Not Satisfactory

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INDIANA, PA.

paring plans for a $40,000 masonry church for the Calvary Presbyterian Congregation of Enumclaw.

The general contract for the fireproof central building to be erected by the Pacific Telephone & Telegraph Co., for the new North Central Exchange, has been awarded to Rounds-Clist Co., contractors, Walker Building, at a cost of $80,000. Norton & Spangler, Henry Building, received the contract for the installation of plumbing and heating.

The Seattle Sanipractorium, Seattle, a recently incorporated firm with capital stock of $400,000, plans the erection on Queen Anne Hill of a health resort at a cost of $400,000.

The contract for plumbing work in the Lincoln High School annex structure has been awarded to Ernst & Wolff, 311 Stewart Street, on their low bid of $3,112. The contract for heating the structure was awarded to the University Plumbing & Heating Co., 3939 Fourteenth Street, N. E., on its bid of $1,949.

Considerable interest is being shown in the call for bids by the Seattle School Board for the construction of the new $130,000 Girls' Parental School on the shores of Lake Washington. Bids for general and sub-contracts will be opened shortly.

The Seattle School Board recently awarded contracts for plumbing and heating in the East High School, the heating contract going to P. J. Lavan, 1319 Eighth Avenue, on his bid of $6,240. The contract for plumbing was awarded to the Eckart Plumbing & Heating Co., 1614 Third Avenue, on a bid of $5,600.

Other Cities in the State.

Contract for the plumbing on the Yakima High School has been awarded to Milton Morton, on his bid of $5,943. The contract for heating the structure was secured by A. B. Whitson, Yakima, on a bid of $13,658.

The Tacoma School Board has awarded to F. C. Grosser, at his bid of $1,959.40, the plumbing contract on the addition to the Point Defiance School.

Contract for plumbing in the two-room and basement annex to the Park Avenue School, Tacoma, has been awarded to A. B. Gehri & Co. at $1,948.

All bids submitted for the Tuberculosis Hospital, to be erected at Elma by the Grays Harbor County Commissioners at Hoquiam, were taken under advisement. The low bid for general work was that of Oscar Foster, of Aberdeen, at $34,066. The following bids were submitted for plumbing and heating: W. E. Burton, $7,046; W. S. Fleming, $6,438; Joseph M. Finkley, $7,683; A. J. Fletcher, $6,920; Elway Miller, $6,300; W. S. Kerrigan, $7,900.

Contract for the construction of the $25,000 American Veteran Homes Building, in Hoquiam, has been awarded to the Grays Harbor Construction Co.

J. L. Wilkins and Thomas Underwood, of Carson, have formed a company, incorporated for $200,000, for the erection of a modern health resort at Evergreen Hot Springs. The first unit of a hotel will be erected at once. The structure will contain fifty rooms, and will cost $60,000. A plunge costing $20,000, and a bath house costing $10,000, will also be built.

The Tacoma School district is advertising for plumbing bids for the new Eash High School.

The City Council of Anacortes has ordered the building of a trunk sewer system to cost $53,000.

Georgia

The Tidd Plumbing & Heating Co., Columbus, is to install the plumbing and heating in the Columbus fire station on Broad Street, and in the residence being erected for J. P. Massey on Fourth Avenue. The plumbing in the country club has recently been completed by this company.

The Walker Plumbing & Electric Co., Columbus, has recently secured the contracts to install plumbing, heating and electric work in 1,150 houses that are to be erected in that city.

California

San Francisco.

The recently reoganized Builders' Exchange of this city is making a strong move for co-operation among all building industries. The desire seems to be to deal collectively with the constantly increasing demands of labor and to eliminate unwise competition among the different industries engaged in the occupation of building. President J. D. McGilvray, of the Builders' Exchange, appointed a committee on May 18th, to crystallize this movement, and the body seems to have been actively proceeding with the work in hand.

Among the first work of the committee was a decision to organize a body composed of delegates from all the different crafts represented in the Builders' Exchange. This is to be known as the Central Body of the Builders' Exchange. It will be governed by the Board of Directors of the Exchange, with the President ex-officio chairman of the Central Body.

The aims of the Central Body are told in a letter which has been sent to members of the building industry and manufacturers of San Francisco by P. J. Lynch, secretary of the Central Body. The letter follows in part:

"Regarding with solicitude the unfavorable condition of the building industry in this city, which condition has been brought about by unwise competition among the several crafts engaged in the building line and the constant and unreasonable demands of labor, whereby the usefulness and respectability of said building industry is endangered, and believing that these evils have their remedy in organized effort, intelligently administered, we have formed a central body, the object of which is to correct those evils, and in order to accomplish this laudable purpose we must have your hearty and unselfish support. The time has arrived when we must take a stand against the unreasonable demands of labor.

"The objects of this Association shall be to foster the interests of those engaged in the erection, construction and completion of buildings and other structures, and of those engaged in connected industries and lines of business, and to reform abuses relating to the business of persons so engaged; to promote and inculcate just and equitable principles in the transaction of business, to encourage fair and legitimate competition in the building trades and the manufactures connected therewith, to discourage reckless and ruinous competition therein."

The letter goes on to state that co-operation between all those interested in building and allied industries is the only solution for the problem. Every craft is urged to organize. Those already organized are advised to join in forming a State Federation, to place these matters in the hands of business men who have volunteered their services. It is expected that further action will be taken soon.

Other Cities in the State.

R. H. Downer, Berkeley, submitted the lowest bid, at $94,250, for constructing a sanitary sewer system for San Diego. This includes, approximately 10.7 miles of 4-in. to 12-in. pipe and septic tank.

Alabama

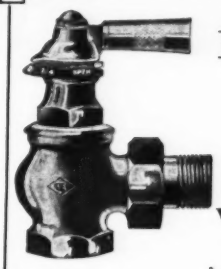
Montgomery.

The Anderson Plumbing Co. is installing the plumbing and heating in two four-room apartment buildings on Court and Sayre Streets, and the plumbing in two other residences. The company has recently completed the dismantling of Camp Sherman, near Montgomery.

Pope & Barrett have the contract to install modern plumbing in five residences in the city, and have recently completed the plumbing installation in the Lutheran school, on Cleveland Avenue.

Allen & Crowell have secured the plumbing contract on the new addition to the St. Margaret's Hospital.

Little Plumbing Co., Inc., who has been in the plumbing and heating field only a little more than two months, report a rapidly growing business, having secured several good-sized contracts.



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"O-E" PERFECT VAPOR-VACUUM-PRESSURE Heating System

The "O-E" Improved Perfect Packless Quick Opening Graduated Supply Valve is installed at top of radiator in convenient position to operate. Hard rubber handle. Always cool. Prevents radiator filling with water. Eliminates noise. Will never have to be packed. Temperature easily regulated as desired. Ornamental design, sand blasted and nickel plated.

This valve, used in connection with the other "O-E" Specialties, makes a perfect heating system.

Booklet "A" will tell you more. Write for it.

O-E Specialty Manufacturing Co.
884 Third Street Milwaukee, Wis., U. S. A.

Specify Kennedy Valves

The uniformly reliable service of Kennedy installations would be a source of satisfaction to your client and would reflect favorably on your own good judgment.

If you have hesitated to demand Kennedy products because of cost, you would be agreeably surprised at our prices. If because unfamiliar with our designs, you can rely absolutely on any construction advocated by us.

Ask for our latest catalog. Kennedy facilities provide for prompt delivery of any types in any quantity.

THE KENNEDY VALVE MFG. CO. ELMIRA, N.Y.

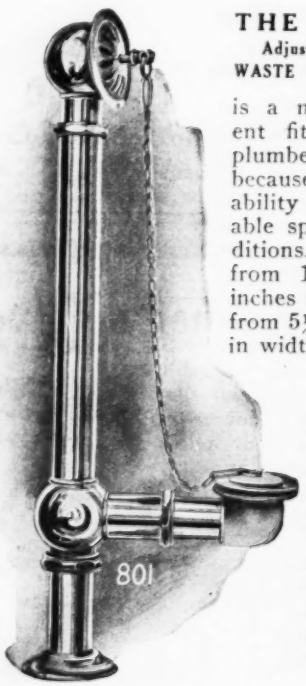
Branches: New York, 95 John St. Boston, 47 India St. Chicago, 204-8 N. Jefferson St. San Francisco, 23-25 Minna St. Sales Offices: Philadelphia, Kansas City, Salt Lake City, Seattle, Portland, Ore., El Paso, Winnipeg. Export Office: 95 John St., New York City.

8

FROST QUALITY

BRASS GOODS FOR PLUMBERS

A standard line of high grade brass supplies, including everything the plumber requires in Traps, Waste and Overflows, Tank and Seat Trimmings, Lavatory and Tank Supply Pipes and Fittings, Sanitary Vent Fittings, etc.



THE "FEMCO"
Adjustable Connected
WASTE AND OVERFLOW

is a most convenient fitting for the plumber to install because of its adaptability to suit available space and conditions. Adjustable from 12½ to 14¾ inches in height and from 5½ to 7 inches in width.

"FEMCO" Products are accurately made of highest grade brass in neat, pleasing designs. Finest nickel-plated, durable finish.

You make no mistake when you specify and install "FEMCO" BRASS GOODS.

Order from your jobber

Frost Manufacturing Company

Kenosha, Wisconsin

Perry & McDonald are completing the sterilizing, filtration and piping of two swimming pools, one for the City of Montgomery at Oak Park, and one for O. Norman on Bell Street. The plumbing in the dormitory of the Masonic Home, and the remodeling of the plumbing in the Hubbard Hospital will also be done by this firm.

THE PROVINCE OF ONTARIO.

Ottawa.

The plumbing and heating contracts for the new Pembroke hospital has been awarded through the office of Milson & Burgess, Architects, Ottawa, to W. A. Derry, of Pembroke, the tender being $25,000.

At the present time plumbing and heating contracts are pending for a number of public buildings among them the new $2,500,000 civic hospital, the Salvation Army Maternity Hospital, the Bayswater Council K. of C. building, and ten dwellings at Lindenlea under the Housing Commission.

Local architects report that while building is now fairly active the awarding of plumbing and heating contracts has been held up considerably owing to the recent strike in the building trades.

Practically all of the plumbing and heating work under way here now, the local trade reports, is confined to jobbing, repairs and replacements, due in the main to the alteration of dwellings in many cases into apartment houses.

A Modern Chesterfield.

One of of our younger Canadian journeymen went to a small city of 15,000 inhabitants to install the plumbing in a new building. Thinking he would have to arrange for a license and that there would be by-laws governing the plumbing in the city, he inquired at the City Hall. After being directed to several officials he at last found the city clerk, an elderly gentleman, who informed him that there were no by-laws, and that he did not think it necessary to have any, because the plumbers were robbers, and plumbing only added useless expense to a house, and if plumbers had laws regulating their business, they would bleed the people white. Instead of giving the old gentleman a polite invitation to the "hot place," as we of the older school would have done, he started in on this strain: "You dear old antiquated fossil, relic of a by-gone age! Are you not aware of the fact that Hon. Alexander McKenzie and Sir John A. McDonald have been dead for years, even though you may think you are still voting for them? That the Reil Rebellion is over and that the boys coming back from war are not from South Africa, where lack of sanitation killed more than Boer bullets, but from the Great World War, where only few died from disease, because they took plumbers with them? That before Mesopotamia, Palestine or Egypt were fit to live in, it was necessary to turn a flock of plumbers loose there. That the Panama Canal was possible only after the plumbers were there first. Also that since 'John Barleycorn' has died it is up to all cities to arrange comfort stations for the inhabitants, because the hotels who used to do this for nothing are now closing their doors—and if such antiquated officials as you do not learn these things the world will leave you on a shelf and make room for more up-to-date men."—Ratsy.

P. J. Stevenson, now on his way to Johannesburg, South Africa, to open the first office of the Department of Commerce in that country, said in an interview in Paris, June 10th, that the trade between South Africa and the United States was increasing steadily, and it was hoped to establish a permanent bureau there, so that trade relations of the two countries might be largely stimulated.

CANADIAN SOCIETY OF DOMESTIC SANITARY AND HEATING ENGINEERS HOLD TWENTY-THIRD ANNUAL CONVENTION.

(Continued from Page 546.)

"Clauses 3, 6 and 7 of the secretary's report. We would recommend these clauses be taken up in the open convention."—This was referred to the new executive.

"Clause 4 of the secretary's report. We recommend this unto the convention. We absolutely concur with the co-operation movement with the manufacturers and wholesalers, if it is possible to get them on a proper footing."—This was also referred to the new executive.

"Clause 8. We recommend that this clause be adopted with a rider. That the manufacturers and wholesalers sell to the trade only."—This was tabled.

"Clause 9, of secretary's report. We concur with the secretary, and we do not believe in having anything to do with the Canadian Association of Construction and Building Industries, and we absolutely are against tendering with the bulk contractor as we feel that we should deal with the architect and owner."—Approved.

"In conclusion your committee wishes to thank our worthy secretary for the able report he gave to us on the convention held at Atlantic City last year and also for the able report for the year."—Approved.

Harry Mahoney, vice-president; Thomas J. Minnes, president of the Ontario Province, then gave their reports, which were well received.

The following reports by the Heating Committee, the Ventilation Committee, and the Apprenticeship Committee, were then read as follows:

The Heating Committee's Report.

As Chairman of the C. S. of S. & H. E. I have the honor to submit the following report concerning "Heating Systems and Ventilation," installed in the Province of Quebec.

In the interest and welfare of the general public in the installation of heating systems capable of giving satisfaction it is always difficult to obtain or convince a client that the cheapest apparatus is not always what should be installed, and it is very often the fault of the heating contractor, who is very often afraid to ask the price required to make and assure a good job. What I wish to demonstrate is the advantages derived from a well installed heating system, either hot water, steam or hot air, according to the conditions of the building and the adaptability of the system for the construction. It should be in the interest of all responsible master plumbers to give satisfaction and thereby maintain a good reputation for the plumbing trade in general.

We have had to witness and inspect some installations of heating plants in private houses which were simply abominable and should not be called a heating apparatus. A steamfitter should be more scrupulous of his work, and have at heart the installation of a heating system worthy of a steamfitter, and by so doing we will advance and educate the helper steamfitter and also encourage him in learning his trade.

Hot Water Heating.

Hot water heating systems are not generally installed according to rules outlined by the capacity of the sizes of piping. Some parts are so overloaded and others so deprived of utility that they render useless the workmanship. A well balanced heating system is always certain to give more or less satisfaction should it be short of radiation. It is also necessary to demonstrate to the client the best heating system that should be installed in a private house, and I am of the opinion that hot water is more healthy than a steam apparatus, although it is more expensive to install, but far cheaper to operate.

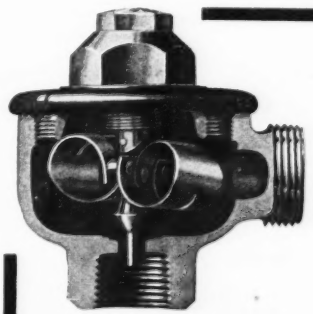
Asbestos Magnesia
Sectional Moulded Covering

for steam pipes and all high pressure work where strength and durability are required. It works easily, fits snug and does not "sag." It is light, yet tough and will not "fall" in cutting. It contains extra long fibre Asbestos, Carbonate of Magnesia and other fireproofing materials, all of excellent quality.

Always look for the "Diamond N"—it's a sign of good faith.

Write for prices

Norristown Magnesia & Asbestos Co.
NORRISTOWN, PA.



RADIATION 100% EFFICIENT

The Trane Thermetal Radiator Trap insures quiet, quick to heat up, and economical radiation—

Its positive, powerful action absolutely prevents the wasteful passage of steam into the returns, while air and water are vented freely.

Made entirely of metal—without a diaphragm—and extremely sensitive to heat and cold, this Trap is particularly desirable for all kinds of two-pipe systems — vapor, vacuum, or straight steam and in buildings of all descriptions where long life, dependability and efficiency are required.

Trane Thermetal Traps are furnished standard on pressure up to 25 lbs. Where a higher pressure is used special High Pressure Traps can be furnished.

Write today for Bulletin No. 6

The Trane Company
La Crosse, Wisconsin

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Philadelphia, 20 S. 7th Street — Boston, 110 State Street

Only Two Moving Parts

The Ofeldt Automatic Water Regulator is built on the improved float principle, using a metal valve instead of rubber.

Will last indefinitely. No parts to wear out. Seats perfectly tight. Metal valve oscillates with water passing through, making it self-cleaning.

Designed especially to maintain proper water level in any size low pressure heating boiler and is suitable for high pressure boilers up to 15 H.P. and 100 lbs. pressure.

NOT a Trap, Pump or Injector

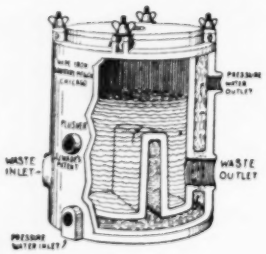
A device every heating man needs.

Write for full details

The Ofeldt Gas Fired Boiler Co., Inc., Nyack, N. Y.

Makers of Water Tube Boilers for 25 years

Complies With Health Ordinance



The WADE Accessible Flushing Clean-out Water Jacket Grease Catch Basin is especially desirable for installation under kitchen sinks in hotels, restaurants, clubs, etc.

A fixture that you can guarantee to meet all sanitary requirements.

Write for Catalog "B"

Wade Iron Sanitary Mfg. Co.

551 W. Fulton Street, Chicago

I would take advantage of this occasion. We have for a number of years past devoted our energy to the forced hot water heating system, and we have met with very good results where installed and especially where centralization is made, that is, where a number of large buildings are isolated, it is of a great advantage to the consumer for saving of fuel. In some cases it has resulted in a saving of 35 per cent of the fuel and was found cheaper to operate.

In centralizing a new plant of heating it is a recognized fact that specialties necessary to the forced system will somewhat increase the cost of installation, but the satisfaction derived therefrom will repay in time by the saving of fuel alone. The forced hot water system of heating will guarantee a good circulation of the water throughout the radiator and more especially in pipe coils where most of the time only two-thirds of the radiation is heated.

After considering all these facts we have adopted a system and have also obtained the patent rights for Canada and the United States and have annexed with it a hot water heater, which forms a part of the forced hot water system, which can be installed for heating any kind of a building, from one-story to 40 stories, from 10 sq. ft. to any quantity, and from one building to any number of buildings.

Steam Heating System.

Steam heating installations are very often disadvantageous because they do not give satisfaction. We mean a gravity system, but if a one pipe or two pipe system is installed, there will be more satisfaction by employing an air line, one-pipe system or two-pipe system by vacuum on the return pipe.

The Ventilation Committee's Report.

We regret to state that this branch of our business has not made the necessary strides and advancement compared with our sanitary systems.

We would suggest that the matter be discussed to bring before the public the best and simplest modes of ventilation for public buildings and private dwellings. At present, throughout many of the provinces of the Dominion of Canada the only compulsory ventilation is the ceiling vent from rooms where water closets are installed. In the majority of cases this has proven to be a source of danger more than a benefit, being installed along side of the ventilating soil pipe and very often with both outlets at the same level.

We would recommend that the several provincial vice-presidents take the matter into consideration and bring before their different governing bodies in the provinces the crude and dangerous ceiling vent, as in many cases installed.

In the ventilation of public buildings, such as schools, churches and theaters, halls, etc., architects and engineers are giving greater attention to this end of the buildings and with the perfecting of the thermostat, has given good results when under the control of a competent stationary engineer. We also draw your attention to the Unit System of Ventilation, which eliminates the large ducts, fans and immense stacks of radiation, where each room is governed singly. This has given very satisfactory results in lessening the cost of installation and operation. We consider this a step in the right direction to give the public a less expensive and improved ventilation system.

We have no doubt that many of you have seen the much written of cold proof house built in Saskatoon, in which the electric radiators are turned off at 8.30 p. m., with the temperature inside 67 degrees and outside it is 24 degrees below zero, the temperature has only fallen to 54 degrees in the morning. If any of the members from Saskatoon have seen the house they may be able to let us know how the house was ventilated.

We also wish to call your attention to the unsatisfactory ventilation of railway and street cars which, with our modern appliances, can be easily improved. The attention of the different companies should be called to this fact.

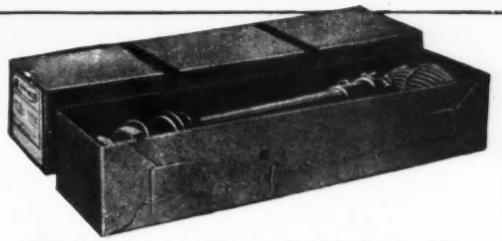
The Apprenticeship Committee's Report.

In presenting to you the Apprenticeship Report for 1919, we are pleased to say that the apprenticeship problem is receiving a great deal of attention all over the country at the present time, and not without need, as nearly every city in the Dominion is dependent on immigration of mechanics from other countries to supply the demand. We consider this very unfortunate, for the Canadian boy, properly trained, is more adaptable generally to our style of work, and now that we have the opportunity of giving the boy technical education, we think every master should interest himself, first, to secure boys of the proper caliber; that is, the boy should be of good moral character and have a common school education. From inquiry we find that a very small percentage of the masters throughout the country employ boys to learn the trade. As an example, in the City of Toronto, out of a membership of one hundred and sixty or seventy, we find that only forty of our members employ boys, and those masters, who do not employ boys, are always ready to entice the boy away from the shops after two or three years' experience, and this is, we consider, very bad practice, and not beneficial to the boy. To remedy the above troubles or defects in our present system, it has been proposed by the Toronto Apprenticeship Committee to recommend to their association the following:

"That a joint committee composed of masters and journeymen be appointed and known as the Apprenticeship Committee. The idea would be that boys wishing to learn the trade, would apply to this committee, and, in turn, if the boy proved to be of good moral character and of common school education, the committee would turn the boy over to the master who was first on the list of applicants for boys. The parents or guardians of the boys would be a party to an agreement, that they would use their influence with the boy to abide by any rules which were laid down by the said committee, such as attending school during each term of night school at least two nights during the week, where he would be taught mechanical drawing, mathematics, and physics."

The Toronto Society had a class of seventy boys during the last year enrolled at the Technical School, and though the results were not what we expected, owing to the great amount of unrest among the boys, we believe it is a step in the right direction, and will bear much fruit once conditions have become normal.

The Apprenticeship Committee should have full control of the boy from the time he starts to learn the trade until he becomes a journeyman. He would not be allowed to leave one shop to go to another unless sanctioned by the committee. The committee would have the power at any time to call the boy up for examination, and if not making the proper progress, they could investigate and find where the trouble lay. Every boy should have at least three months' probation before he is registered as an apprentice, to ascertain whether he feels inclined to go on and learn the business, and to allow the committee to ascertain if the boy had the proper qualifications to become a mechanic. Dr. Mercer, the Government representative for Technical Education, assures your committee that the Government will do all in its power to assist in giving the boys the opportunity to acquire technical education throughout the country, but at the same time advises us that we must have some system whereby the boy will be compelled to attend these classes. We believe that the boy who will not attend the classes is not interested enough in the trade to remain



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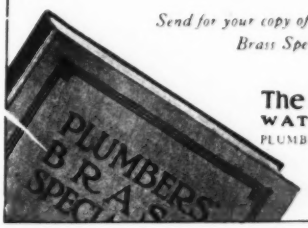
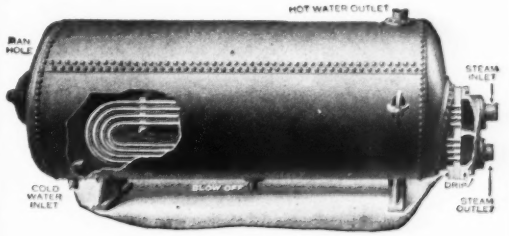
carries a complete set of Ampinco Tank Trimmings. Just take onto the job your Shell and this package. You will have every part you want, when you want it and where you want it, every Washer, Wire, Escutcheon and Hook as well as the Valve, Ball Cock etc. And furthermore, you know every part will fit because you have a package of

STANDARDIZED FITTINGS

Send for your copy of the new Ampinco Plumber Brass Specialties Catalogue.



The AMERICAN PIN CO.
WATERBURY, CONN.
PLUMBING GOODS DEPARTMENT



'n' tubes of seamless cold drawn copper—compactly nested in the lower part of the shell leaving the upper part for **hot water** storage—efficiently heat the water in the

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There are many other exclusive features of the

Patterson System of Water Heating

which guarantees instantaneous, pure **hot water.**

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Therefore, some PLUMBER is the father of every leaky roof.

The Bullard Roof Flange

is acknowledged as the only PERFECT FLANGE by busy men who have made satisfying installations.

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Closet Tank fittings are not the cheapest and are used by Manufacturers who want the best.

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Ballcocks, Flush Valves, Hinges, Flush Levers, Etc.

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Ready to do it the Martin Way

Our friend on the right is carrying a MARTIN PORTABLE VISE STAND and PIPE BENDER to the job—a sure sign that he will save time, labor and money when cutting, threading and bending pipe. The MARTIN is always on the job—in the shop or outside.

It will prove a real help to you and you can have a TEN-DAY FREE TRIAL. Write us now, or see your Jobber.

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626 E. 2nd St., Owensboro, Ky.

EXCELSO WATER HEATER

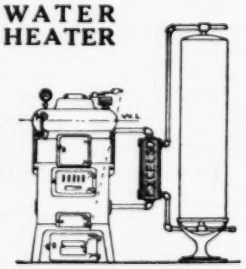
Heats domestic water just right at minimum cost.

A simple, one-piece casting connected below water line on outside of steam and vapor boilers. Does away with fire-pot coils.

Three sizes, for 40, 70 and 100 gals. capacities.

An easy seller and big profit maker.

Write for details.



Showing Heater Connected to a Vertical Type Boiler

EXCELSO SPECIALTY WORKS

601 WHITE BUILDING BUFFALO, NEW YORK

at it. We would strongly recommend that every master throughout the country would interest himself in the apprenticeship problem and take on as many boys as his business will allow, and to make sure that the boy gets an opportunity to acquire a technical education and also gets a good business training. We believe that every city and town in our country, no matter how small, could make some provision for the boy to procure this knowledge. Our Toronto Society, through the generosity of three of its members subscribing sufficient money for an endowment fund, is enabled with the interest accrued from it, to grant four scholarships to the boys taking highest marks during the year. The four boys who gained these scholarships last year received very high marks in all of the subjects. We believe the scholarships to be a very good thing, as it is something for the boy to work for, not only for the value, but for the honor that goes with it.

In the smaller cities and towns of Canada, the boy could always receive the practical knowledge from his employer, and we think that the employers could arrange with the teachers employed in the schools to give night classes at a nominal cost.

The great need of our trade today is education. We have tried for a great many years to educate the masters and the men, which has not been very successful. Now let us start at the foundation, which is the boy, and we feel confident that the results will be so marked and beneficial that our trade will be placed in its proper position in the building industry, which we claim should be at the top.

The committee to which the report of the Legislative Committee was referred, included: Benjamin Noble, London; Harry Farthing, Toronto; Roy C. Belyea, Toronto; John Wright, Toronto.

The Auditing Committee consisted of Thomas Maxwell, Toronto; G. S. Bowman, Preston, and Col. D. A. Bethune.

Tuesday Evening.

In the evening the Enders Club, comprising plumbers from the ends of the town, gathered in joint meeting. D. MacLulich, one of the speakers, talked on "Efficient Accounting and Business Management," and made illustrations with a blackboard. He also outlined a good bookkeeping system. Mr. Borden, of the Printers' Association, the other speaker, gave a very interesting talk on what his association was doing in the lines of Trade Extension Work.

Wednesday Morning Session.

The first order of business for the Wednesday morning session was the reading of the report of the Sanitation Committee, prepared by John Wright. This report, which dwells at length on the absolute necessity of sanitation for the lives of men, carries with it many important subjects from which can be gathered a large harvest of information. The report, as submitted by Mr. Wright, follows herewith:

John Wright's Report.

In respect to the part to be played by the national government in this campaign, there may be legal limitations within which the federal authorities can work, and these will have to be respected, but there can be no doubt that health is a question of national moment, and any legislation, which prevents or hinders the national government from exercising its due prerogative in the matter, is faulty and should be amended. If, however, the field is limited, then the responsibilities for engagement in good active work are the greater. In this country the effect of a well organized and equipped federal department of health would do much to strengthen the hands of the various provincial health authorities, and would firmly establish public health with all that it means of blessings to the people of every class—there would be such a marked advance all over Canada as would surprise us all.

One of the essential features in the application of sanitation to the general health of the community is efficient methods of sanitary plumbing, heating and ventilation. In aiming to protect and prolong the life of the people, our efforts should be such that legislation upon this important problem may be in the best interests of the people in general.

The many problems of federal, provincial and municipal sanitation are all so intimately associated and interwoven that to begin the enumeration of the functions of any one of them is to at once get in touch with the other two. There are, however, some duties and powers which are more peculiarly suited to each, and yet for their efficient performance require that authority should be centralized, and when it is remembered that unless health measures are efficiently performed they are worthless, for they do not secure the desired end. Hence, we are more and more realizing in this country that health is of national importance, and the federal government should devote more attention to all matters having for their object the betterment of the health of the people than it has during the past forty five years.

Sanitation and ventilation have gained world-wide prominence through the endeavors of the medical profession, scientists, sanitary engineers and public bodies, for a number of years, to introduce measures that could be accepted as standards of efficiency, and by the earnestness of such men, there has been evolved a sanitary system based on fundamental scientific principles that can be adopted practically in any portion of the world. For the absolute protection of public health, legislation should be so directed as to secure the highest degree of efficiency in our sanitary system. Like all legislation of a restrictive nature, we find a great deal of opposition from those who are ignorant of the real value of such legislation, but with a process of education in the adoption and enforcement of restrictive law, by which the future life of Canada is protected and benefited, it is readily welcomed as being essential to the national welfare. And it is with this view that I introduce this subject for the consideration of this convention.

General Conditions in Canada.

In the Dominion of Canada we have no generally recognized standards regarding sanitary plumbing and ventilation, but are governed by a multiplicity of laws and by-laws, adopted by the governing bodies of our cities and towns and enforced according to their own interpretations. In the year 1887, Toronto adopted the first plumbing ordinance in Canada. This was followed by many others, until today the majority of our cities and towns have some form of ordinance. In some, we find a recognition of splendid principles making for effectiveness, but rendered void because of non-enforcement. In many others we find no recognition whatever that any law exists, with the result that even sanitary plumbing is installed in such a way that it becomes a menace to public health.

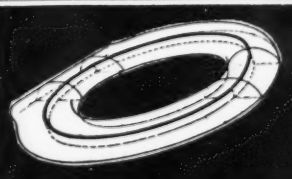
In the majority of our larger cities, there is a desire to study and meet the demands of the plumbing business, so much so that we continually see them amending their by-laws to meet changed conditions. Many have adopted the plan of examining and licensing the men engaged in this occupation, with such beneficial results that many others contemplate following the same procedure, which is claimed as an essential point in placing sanitary plumbing on a proper recognized basis in its relation to health. From the Atlantic to the Pacific we have many varieties of sanitary plumbing, some a distinct credit to the forethought of our Boards of Health and Municipal Councils, and others an absolute disgrace to the name of sanitation. Some of the abuses call for serious consideration.

Smaller cities and towns will probably become large

"Sirocco"
TRADE MARK.

Let Sirocco Engineering service solve your ventilating, heating and cooling problems. Send for catalog.

AMERICAN BLOWER COMPANY
DETROIT, MICHIGAN U.S.A.



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The difference in cost is nominal. Considering results they cost less. They spell satisfaction as well as profits.

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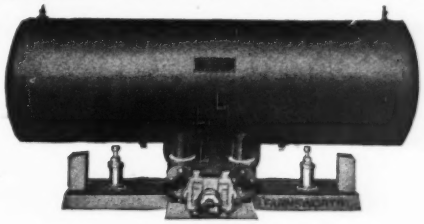


"The greatest coal saver ever offered the steam plant."

FARNSWORTH CO. Conshohocken, Pa.
Engineers and Manufacturers of Condensation Pumps

THOUSAND ISLAND HOUSE *and* THE CROSSMAN HOUSE
ALEXANDRIA BAY, N. Y.
NOW OPEN

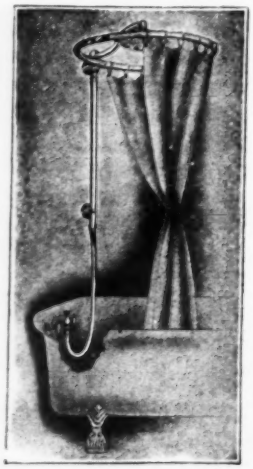
THE two leading hotels in the Thousand Islands are now under the same management. Over four hundred rooms, more than half with private baths. These two hotels are situated on the St. Lawrence in the heart of the Thousand Islands. Finest Fishing, Motor Boating, Trap Shooting and Bathing. Excellent Cuisine. Orchestra and Dance Hall in hotel. The finest auto road from all points. The ideal place for your vacation.

Write for handsome illustrated booklet.

WILLIAM H. WARBURTON, Proprietor

SANIBRASS

Portable Showers



A Big Seller

With Every

Master Plumber

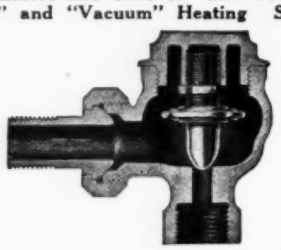
Ask Your

Jobber

SANIBRASS CORPORATION
17-27 LIBERTY STREET BROOKLYN, N. Y.

Marsh Reflux Junior Thermostatic Traps

For Radiators and Coils of "Low Pressure" "Vapor" and "Vacuum" Heating Systems



Freely Discharges Air and Water Without Loss of Steam

The Marsh REFLUX Return Line Trap is for use on the return end of radiators of low pressure, vapor and vacuum systems of heating. It is the result of a careful investigation into the actual requirements that must be fulfilled by a radiator return valve, in order that it may accomplish what is desired of it, namely, **to free the radiator of air and water without the loss of steam** and to do so **noiselessly.**

The Marsh Reflux Junior Thermostatic Trap is recommended for small radiators and coils. This Trap for the small and the Original Reflux for the large units will make an ideal job.

Especially adaptable for two pipe gravity work and vapor systems.

May be furnished either concealed adjustment (as illustrated) or with outside adjustment.

Write for literature fully describing this trap.

JAS. P. MARSH & CO.

Established 1865 118-124 South Clinton St., CHICAGO

Manufacturers of Gauges for all Pressures and Purposes Automatic Air Valves and Steam Specialties

centers, and means to improve sanitary conditions by a universal standard should be the aim of all. Even now, with the advance of sanitary education, we see many of our cities working on amendments to their laws. Too frequently they lack knowledge of the science of sanitation, and do not recognize any set principles, being merely governed by what has been satisfactory in some other place. So that if by some action of a Federal body or central authority, a set standard were established, it would prevent the useless experimenting and continual alteration of laws, and would serve the real purpose for which such laws are intended. There can be no serious objection to legislation along these lines, as already all the important cities and towns, with few exceptions, have some form of local legislation.

Evils of Speculative Building.

One of the most disturbing factors to be faced is the speculative builder whose sole aim is the amount of profit he can make, and not the degree of efficiency he can provide, because he is not building for his own personal occupation, but for sale. With the competitive system prevailing, everything is kept down to such a minimum of cost, that all standards of efficiency are neglected, and supposedly attractive outside architecture is given more consideration than the conservation of the health of the future occupants. Even in those cities that have effective sanitary legislation they find at all times a desire on the part of speculative builders to encroach upon requirements of the law, and in many ways they are successful in doing so. When they cannot evade the law by using inferior materials, they will generally hire incompetent mechanics, who sublet work at such prices that competent men know that some means are being taken to avoid the law. The present time, when thousands of homes are being built annually, which will be the permanent residences of the future citizens of this country, is the opportune time for legislation. Immigrants have as much desire as our own people to have brighter and healthier homes where they can have the use of all the best devices for the safeguarding of health and the recognition of proper sanitary standards; and they should be aided in that desire by such legislation as will guarantee them protection from the unjust exploitation being carried on by speculative builders.

With the advances that are taking place in sanitary, heating and ventilating equipment, the necessity for forming a codification of the laws dealing therewith is increasingly felt. While there may be some impediments in the way, owing to the multiplicity of legislative enactments, still with co-operation these may be overcome. The many interpretations put on our laws, due to lack of rigid forms of administration, is surprising. In many towns we find the administration left in the hands of an unsympathetic department, or men being employed as inspectors who have no knowledge of the occupation, and who have been selected purely for personal or political reasons. Hence, we may expect to find that low standards of workmanship, which are a menace to public health, are very common.

Proposed Federal Law.

Realizing that the cities and towns of the Dominion recognize the value and necessity of by-laws for the control of sanitation, ventilation, etc., and are making an endeavor to meet the situation by local regulations, it becomes imperative that the Federal Government should pass legislation that will serve as a minimum standard, leaving the cities free to supplement the Dominion law, by any special regulations that may seem to be necessary by reasons of climatic conditions.

It is the duty of every Domestic Sanitary and Heating Engineer, so far as it relates to this question of health, to study, investigate and recommend to the governments of

Canada how this can be best accomplished, especially since it concerns the health of each member of the household.

In the past the governments have been as extravagant and unsaving of human life as they have been in wasting the resources of the country.

We leave too much to Providence and forget that God helps those who help themselves, and we have yet to realize as Domestic Sanitary and Heating Engineers that we must individually know more and practice more of public health principles.

Immediately following John Wright's report, a resolution was submitted, and adopted, as follows:

"Your committee has much pleasure in moving the adoption of the excellent suggestion put forth by the chairman of the Apprenticeship Committee and unanimously recommend that a copy of this report be forwarded to every Provincial vice-president with the request that they in turn submit it to locals under their jurisdiction, so that it may receive consideration and be put into effect as soon as possible."

Wednesday Afternoon Session.

The Wednesday afternoon session was given over to a get-together gathering of delegates and manufacturers to discuss the Trade Extension movement. President Maxwell, in welcoming the guests, said that the aim of the get-together meeting was to co-operate more closely with the manufacturers of plumbing and heating materials in Canada in order to elevate the plumbing and heating field, and put it on the same basis as other businesses. Stating that he knew that neither he nor the manufacturers were receiving what they should realize, he invited the makers to step into their shops and then tell just how to run them at the best advantages. Electrical goods, he declared, is the kind of goods that is wanted in the plumbing business.

Fred Armstrong, who was invited by Mr. Maxwell to give the manufacturers' viewpoint, stated, that in his opinion, the manufacturers were glad to sit in conference with the plumbers and discuss with them the important topic of Trade Extension. He read a letter from Thomas J. Minnes, president of the Ontario Society, who gave his opinion of such a Trade Extension Bureau as they were striving to establish. Mr. Minnes' letter favored the establishment of a Trade Extension Bureau such as that in operation in the United States.

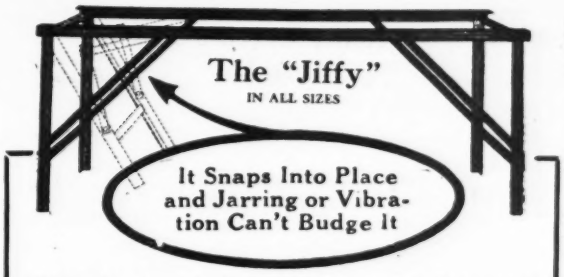
Mr. Armstrong gave an account of the first meeting that was called in April in connection with the Ontario meeting, when a conference was held in which the idea was launched for the Province of Ontario. He said that it was a great pleasure for him to talk to the Canadian Society to launch the idea for the whole of the Dominion. He also stated that with the report of the work done by the National Trade Extension Bureau in the United States, the report of T. J. Minnes and the investigation carried on by the committee representing the manufacturers, he was authorized, as chairman, to endorse and support, and that the manufacturers were prepared to help financially in establishing a similar bureau in some section of Canada.

Among those who expressed their ideas as to the formation of such an organization, were:

Hugh Wallace, Kenneth B. Allison, Harry A. Weinraub, Fred Armstrong, E. L. LeGrow, Ernest Cooke, Roy Spence, Frank R. Maxwell, Thomas J. Minnes, John M. Taylor, Peter McMichael, H. Ernest Gunn, Roy Belyea, W. A. Cooke, H. Gurney, Mr. Brewer, C. S. Stevens, F. M. Wilkes, Harry Mahoney, George E. Fisher, J. E. Walsh, Harry G. Watterman, E. G. Brouesseau, G. R. Baker, Ben Noble, and L. Anthes.

Election of Officers.

A nominating committee was then appointed, consisting of the following:



Collapsible trusses with patented notch catch that cannot work loose. A positive lock. Top and legs made of best grade heavy angle iron. Braces of heavy wrought iron. Large, strong rivets. Coated with good quality black paint. Get acquainted with the Jiffy Collapsible Laundry Frame—your jobber will introduce you.

THE FORD DONLEY CO., 1940 East 117th St., Cleveland, Ohio

The Hessler
Adjustable
Plumbers' Roof Flange

It is the best one. Write for prices, to nearest jobber or to

H. E. HESSLER CO.
Syracuse, N. Y.

Former manufacturer of the McGuire

One of the 105 Styles of American Cast N. P. Lavatory Traps

The artistic design and smooth finish of AMERICAN Traps will appeal instantly to your customers.

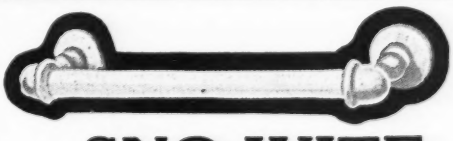
Made perfectly smooth inside and out—deep water seal, full sized waterway.

You can depend upon the AMERICAN Line.

Write for catalog.

Fig. 301

AMERICAN SANITARY MANUFACTURING CO.
Abingdon, Illinois
Manufacturers of Fine N. P. Brass Specialties



C-88 Towel Bar

SNO-WITE

The cut shown here represents one of our beautiful special design bath room fittings—porcelain enamel on cast iron. An everlasting finish.

Write for catalog and discounts.

AMERICAN ENAMELED PRODUCTS CO.
2118-2128 Prairie Ave., Chicago

Perfect Temperature Control
with the
MILWAUKEE
Shower Bath

Nickel plated shower head. Concealed mixing valve with china handle and nickel plated dial plate.

Built for service. Ask your jobber for the Milwaukee Shower Bath.

Made by
Milwaukee Flush Valve Company
Milwaukee, Wisconsin

Fig. U26 Fig. C40

One Of
THE "REASONS WHY"
You Should Handle
DETROIT WATER HEATERS
ECONOMY OF OPERATION

The much greater surfaces of metal, backed by a film of water, exposed to the burning gases, in our heater means that the desired result can be obtained by the burning of 25 to 35 percent less gas.

Detroit Heater Corporation

715-17-19 Grand River Ave. - Detroit, Mich.

WATROUS
SANITARY PLUMBING FIXTURES
DUOJET

A line representing the most advanced ideas in Sanitation, Economy of Operation and Ease of Installations.

Duojet Closets—Flushing Valves—Urinals—Drinking Fountains—Self-Closing Cocks—Liquid Soap Fixtures, Etc.

Manufactured and Sold Exclusively by
The Imperial Brass Manufacturing Co
510 South Racine Avenue, Chicago, Ill.

ASK FOR CATALOG

Insurance
Against Flooded Basements

Where the Signet Drain is installed there can be no back water.

A perfectly reliable trap that automatically keeps out sewerage, gas and germs.

TRADE MARK SIGNET REG. U.S. PAT. OFF.

Pat. Dec. 8, 1914

Always works. Nothing to get out of order. Brass working parts submerged.

The Signet is clean, sanitary, simple, durable and efficient.

Write for details

CRAMPTON-FARLEY BRASS CO.
KANSAS CITY, MO.

J. E. Walsh, Montreal; D. A. Bethune, Montreal; G. A. Cowan, Brantford; Telles Latourelle, Montreal.

The election of officers resulted as follows:

President, Harry Mahoney, Guelph; vice-president, Telles Latourelle, Montreal; Secretary-Treasurer, Garrett F. Frankland, Toronto.

Provincial vice-presidents: Alberta, R. J. Priesitry, Calgary; Manitoba, C. D. Kirk, Winnipeg; New Brunswick, George Dorman, Monctou; Ontario, T. J. Minnes, Brantford; Prince Edward Isles, J. F. Murnaghan, Charlottetown; Quebec, E. G. Brouesseau, Quebec City; Saskatchewan, T. J. Alexander, Moose Jaw.

Chairmen of Committees: Sanitary, John Wright, Toronto; Ventilation, D. A. Bethune, Montreal; Legislation, J. Francouver, Montreal; Apprenticeship, G. R. Baker, Toronto; Essay, H. A. Weinraub, Toronto.

It was announced that the next convention will be held in Quebec City, Quebec.

Banquet.

An excellent banquet was given by the manufacturers and jobbers of Ontario in the Pompeian room of the King Edward Hotel. Following a very delightful menu, the delegation was favored with talks from Col. D. A. Bethune, Ernest Caldwell, Alderman Phinnemore, Alderman Rann, Harry Mahoney, Hugh Wallace, and Telles Latourelle, who spoke in French, but later translated it. C. V. Kellogg, of Chicago, centered his talk on the Trade Extension Bureau. Salesmanship was the topic of Bert Tresday's speech.

This brought an exceptionally profitable convention to a happy close.

DOLAN & OLSON, SUCCESSOR TO THE BON TON DE LUX PLUMBING CO.

(Continued from Page 545.)

and kept right on traveling; got out to the job, showed the Stillson artist how and what to do and uttered a little prayer to the effect that he might get through within three or four days of the time that I had figured, and then started back for the shop. I had my eye out for a plumbing wagon or truck, but didn't run across one and finally got back to this deposit of pipe and fittings. Like the junk man and the pig iron, I looked all around, up and down and couldn't see anyone that wanted that stuff any more than I did, so I loaded it onto the flivver and tied it on, too, because I didn't want to have any of that pipe drop off anywhere and interfere with the traffic. All told, there was 20 lengths of ½ and ¾-inch galvanized iron pipe and 50 odd fittings of the same sizes, worth possibly Forty Dollars. Well worth picking up and too darned expensive to be using for street paving.

(To be Continued.)

BUILDING CONTRACTS RECENTLY AWARDED.

$6,000,000. Plant, Waukegan, Ill. H. W. Johns-Manville Co.

$175,000. New York City. Cottage and garage. F. A. Achelis.

$100,000. Garage and show room, Baltimore, Md. Federal Motor & Sales Co.

$100,000. Office building, Chicago, Ill. John Mohr & Son.

$1,000,000. Plant. Green Bay, Wis. Green Bay Sugar Refining Co.

$135,000. School, Sioux City, Iowa. Board of Education.

$100,000. Bins, Cleveland, O. The Interstate Foundry Co.

$250,000. Apartment houses, Butler, Pa. Standard Steel Car Co.

COMPARATIVE EFFICIENCY OF VENTED HALF-S TRAPS AND NON-VENTED ANTI-SIPHON, NON-SIPHONING OR RE-SEALING TRAPS.

(Continued from Page 540.)

to be no longer required for bathrooms." Also on the same subject: "Proper artificial lighting is actually preferable."

But the worst of all: "In its fresh state sewage forms a useful food for fish."

J. Pickering Putnam, member of the Boston Society of Architects and of the American Institute of Architects, inventor, lecturer, author, and experimenter, may live in a house with putty soil pipe joints and with bathrooms without sunlight, and he may eat fish fed on fresh sewage, but no scientific investigator will accept the tests and conclusions proceedings from the brain of a person so eccentric.

The master plumbers of Boston, it would seem, were not satisfied with the tests and report by the patentee of the Sanitas trap any more than Messrs. Philbrick and Bowditch or the Boston City Board of Health, for in 1885 they decided to experiment on their own hook under the auspices of the Board of Health and under the direction of a Committee of the Association, of which J. O. Sisson was chairman. The tests seem to have been made in the Pierce block in Worcester, Mass. The apparatus consisted of a vertical 2-inch pipe, about 50 ft. long, with a horizontal discharge pipe, 14 ft. long, at its bottom to the sewer. The top of the 2-inch vertical pipe was connected into the bottom of a tank of such size that 2½-inches of water in depth amounted to 5 gallons. The 2-inch tank outlet was fitted with a 2-inch hand operated flush valve. A 2-inch Y was inserted in the 2-inch vertical pipe at a point 14 ft. 3 in. below the tank bottom. To this Y the traps to be tested were attached by a threaded nipple, which had a valved ventilating connection with an 1¼-inch clear circular opening extended with 10 feet of 1¼-inch vent pipe.

The traps tested were the Sanitas, Bowers, Cudell, Bennor, Bottle, Round, and S traps.

The tests applied consisted of successive 5-gallon flushes from the tank without refilling the traps.

With the Vent Connection Closed.

The Cudell, Bowers, and Bennor traps were completely unsealed after the first discharge.

The Bottle trap, 2½ inches in diameter, 7 inches high, with 3½ inches depth of seal, was unsealed by the third flush.

The Sanitas trap had only a total of ½ gill of water and only 6 drachms left above the seal after the third flush.

The Round trap, 5½ inches in diameter, 9 inches high, with 4½ inches depth of seal, holding 2½ quarts, retained 16 oz. of water above the seal after 15 or 20 flushes.

With the Vent Connection Open.

The S trap water seal was not disturbed.

The above mentioned tests are described fully in the "Sanitary Engineer" of September 10, 1885. It is interesting to note that J. Pickering Putnam claims in his book "Plumbing and Household Sanitation" page 258, 1911 edition, that the seal of the S trap was "broken when ventilated through the 1¼-inch vent next the soil pipe."

Mr. Putnam must have known that he was in error, since he wrote on the same subject in September, 1885, to the "Sanitary Engineer," the editor of which, Chas. F. Wingate, replied to him under date of October 1, 1885, calling his attention to the fact that the test report was correct, it having been furnished him by the chairman of the testing committee.

FOR lasting quality and true capacity use *"KOVEN"* Pure Iron, Double Row Riveted, Galvanized Range Boilers, or *NACO* Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

L. O. KOVEN & BRO.
50 CLIFF STREET NEW YORK

The COLEMAN CUP

Note shoulder and socket of this cup

shown is the improved one for general use. The ribbing, both inside and out, carries the weight, leaving the wall thin, making a pliable cup. It has a smooth hardwood handle connected to cup by socket so that it CANNOT become detached.

These cups are made in many sizes and several styles. There is real rubber in COLEMAN'S CUPS. They give unexcelled service with a good profit to dealers.

Catalog on request

ALLAN J. COLEMAN
208 N. WABASH AVE.
CHICAGO

RAYMOND LEAD WORKS
735 So. Washtenaw Ave.
CHICAGO
Largest manufacturers in the
UNITED STATES
of
LEAD MATERIAL
for
PLUMBERS' USE
We Solicit Your Orders

To Make One Blade of Grass

serve the purpose of two, has in these days of restricted production, as great an economic value as making two blades grow where one grew before.

"FITSALL" HOSE CLAMPS
In Two Sizes

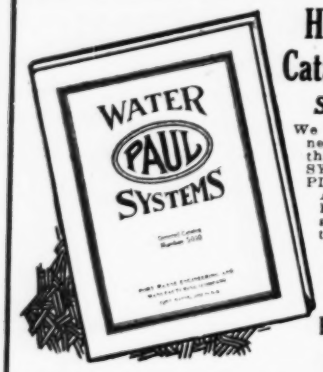
Represent economy in production, stock and $ $ $.

Fit varying thicknesses from ⅛ inch to 1¼ inch.

Ask for circular.

"Built to Maintain a Reputation."

WOLVERINE BRASS WORKS GRAND RAPIDS, MICHIGAN
Wolverine Co., Inc. New York, N. Y.
Wolverine Brass Works, Inc. San Francisco, Calif.



Here's Your New Catalog, Mr. Plumber

Send for It Quick!

We have never issued anything nearly as valuable to you as this NEW CATALOG OF PAUL SYSTEMS OF WATER SUPPLY.

And it's for YOU. All you have to do is to ask for it and we'll be more than glad to send it to you post-haste. Full of illustrations and selling information, covering everything you want to know about these popular water systems.

Ft. Wayne Engineering & Mfg. Co.
1718 N. Harrison St.
FORT WAYNE, INDIANA

THE COAL SITUATION

Are you taking advantage of the coal situation—and selling Parrott Gas Water Heaters? Never was the demand so great—never your opportunity so great. Any live plumber can more than double his gas water heater sales as long as this coal situation lasts. And he can do it easier, quicker, and make more money if he pushes the New Parrott—the heater that does anything any heater will do, and does it with LESS GAS. If you aren't pushing the New Parrott—

GET BUSY! Write Us.

PARROTT HEATER COMPANY
224 21st Street DETROIT, MICHIGAN

DESOLVO and COLD WATER

is the plumber's best helper. Clears up obstructed pipes quicker, better and with less labor than by using any other method.

Keep a supply on hand. Your jobber has it.

THE CHAMBERLAIN CO.
PITTSBURGH, PA.

Canadian Distributors:
Chamberlain-Desolvo Co., 110 Church St., Toronto, Ont.
No Branch Offices in the United States
"K-K" Cleans Closet Bowls the Sanitary Way

THE BRUNSWICK-BALKE-COLLENDER CO.
WHALE-BONE-ITE
REG. PAT. OFFICE
CLOSET SEATS

THE EFFICIENT CLOSET SEAT

HEAVY COVERING ASSURES LIFE-LONG SERVICE — ACID-PROOF — IMPERVIOUS — STANDS ABUSE LIKE A BOWLING BALL — CONCEALED HINGES — INDISPUTABLE QUALITY

RECOMMEND THIS PROFIT MAKER

ASK YOUR JOBBER OR SEAT DEPT.

THE BRUNSWICK-BALKE-COLLENDER CO
623 D 50. WABASH AVE. CHICAGO

In 1886, Wm. E. Hoyt, C. E., S. B., chief engineer of the Buffalo, Rochester and Pittsburgh R. R. Co., delivered an address on "Household Sanitation" before the Rochester Academy of Sciences, in which he described tests on trap siphonage made by J. Pickering Putnam at the Massachusetts Institute of Technology in Boston. The testing apparatus was unique and ingeniously designed, as might be expected, to favor siphonage of vented traps. It was constructed, as described and shown in a cut in Mr. Putnam's much mentioned book, of a 4-inch soil and 2-inch vent pipe stack, the former having connected to it two water closets and about 10 ft. lower a Y branch to which the waste pipe was attached with the S trap to be tested. Each of the two stacks were about 90 ft. long made up of coils of six vertical loops of about 15 ft. each with return bends at the end of each loop. The end of the 2-inch vent coil was connected into the 4-inch soil pipe coil at about its middle point by means of an inverted 4x2 Y, so that the inrushing air had to pass around this very sharp turn and in addition through 10 ft. of small vent pipe of unknown size, 90 ft. of 2-inch vent pipe, 45 ft. of 4-inch pipe, six 2-inch return bends, one 2-inch quarter bend, and three 4-inch return bends.

The "inverted" Y branch can be described only as a "tricky" installation, since it practically forced the 2-inch venting system to attempt to draw its supply of air from the 4-inch soil pipe between this Y and the water closets, in which the air was already rarified by the water closet discharges. What sane man, attempting to design a reasonably good plumbing system, would re-connect a 2-inch vent stack into a 4-inch soil stack by means of a 4x2 Y branch with the branch pointing downward? He would be considered incompetent or crooked.

But this is not all. The S trap under test had its inlet pipe connected into the 2-inch vent stack, that is, it was vented on the house side. No other vent was provided from either the waste branch or the trap. It is no wonder that the trap could be easily siphoned.

Could anything have been done, either more intensely malicious or more thoroughly stupid, which would have produced siphonage of the S trap than this, and which would have tended to mislead any but those thoroughly acquainted with the science of venting?

In December, 1886, Architect Glenn Brown, of Washington, D. C., read before the American Institute of Architects at its twentieth annual convention a paper describing a series of tests made on anti-siphon and S traps at the Museum of Hygiene, U. S. Navy Department, Washington, D. C. In his introductory remarks he says the following:

"The experiments on trap siphonage made by S. S. Hellyer, of London, and similar experiments conducted by Philbrick and Bowditch, of Boston, clearly proved the utility of trap ventilation. The reports of Geo. F. Waring, of Newport, and J. Pickering Putnam, of Boston, as clearly (apparently) proved the uselessness of such ventilation. In the preparation of a work on plumbing I found this conflict of authorities very perplexing. In fact, it was impossible for any one to form a definite conclusion on the efficiency or inefficiency of trap ventilation without actual experiment. The difficulty and object to be attained were laid before Dr. J. Mills Browne, medical director, U. S. Navy, in charge of the Museum of Hygiene at that time. Upon consulting with the surgeon general of the Navy, the subject was thought of sufficient importance to have a system of iron and lead pipes with fixtures erected outside of the Museum Building. With these pipes I have conducted experiments from the fall of 1885 to the present time as opportunity would permit. The waste and vent pipes are of the sizes used and arranged as

in common practice. The traps, on which the tests were made, were selected so as to cover the different kinds in the market, both mechanical and non-mechanical. The apparatus is so arranged that fixtures can be subjected to a strain equal to what they would receive in actual use, as well as strains more severe than they would have to withstand, except in unusual contingencies. The points or places of inspection and for the attachment of traps, are platforms located on the first, second, third, and fourth stories, as shown in drawing attached hereto. By this arrangement the effect of water discharged from varying heights can be thoroughly tested in their relation to different stories of a building. There is a marked change in the effect produced in different stories of a building by a discharge of water from the same point.

"The main stack is of 4-inch extra heavy cast iron, starting at a connection with the sewer and running thence a distance of 32 ft. horizontally, and 42 ft. vertically to a point above the roof of the building. In the second story there is an auxiliary stack of 4-inch lead pipe connected with the iron pipe and running to a point above the roof. Both of the iron and lead pipes have running traps and fresh air inlets near their point of commencement with valves and screw plugs, by which they can be partially or completely closed as desired. By means of a Y branch the system can be made to empty into the sewer without passing these running traps. Either outlet can be used at pleasure, both being governed by gate valves. Two stacks of 3-inch vent pipe, one of iron and the other of lead, run vertically from the second story to the roof, thence horizontally along the roof. By means of plugs and valves, the lengths of vents may be varied from a few feet to 42 ft. and openings from 0 to 3 inches. The outlets in both soil and vent pipes are so arranged that traps from 1¼ inches to 4 inches can be attached at pleasure, all outlets not in use being cut off by gate valves or screw plugs.

"Siphonage caused by the discharge of water through the trap itself from a fixture above has been found of very little consequence. Siphonage rarely takes place; the water passing over the long arm of the siphon rarely fills the pipe so as to cause the necessary vacuum. When it does take place, the trap fills by drainage from the fixture above. Back pressure which comes from sewers would never force the seal of the trap in a house plumbed according to modern practice, the fresh air inlet and the top of the soil pipe being always left open.

"The greatest danger arises from the discharge of large bodies of water down long vertical 4-inch pipes. This column acts to a certain extent like a piston, compressing air in front of it, and creating a vacuum behind. The air rushing in to fill the vacuum, forces or drains the water from the trap into the soil pipe, while compressed air finds its easiest mode of escape through the traps below the point of discharge, even when there is a fresh air opening between the running trap and the house. Although water in case of back pressure is drawn up into the pipe or fixture above the trap and then returns to the trap, the sewer air passes into the house.

"The majority of experiments have been made to test the power of the traps to resist siphonage and back pressure produced by the column of water passing down the vertical pipes. The question of first importance is: Does ventilation protect the seal of traps in ordinary use? This question is answered by the following experiments, in all of which the vent pipes were open, and a positive effort was made to break the seal of the trap."

Any one interested in the detail experiments is referred

"Mon-Seal"
"THE CLEANER CLOSET"
Patent Pending
Made of "Castex" Whitest Vitrified China. A closet of the washdown type but infinitely better.
See your nearest jobber
CHICAGO POTTERY CO.
1924-40 Clybourn Ave., Chicago

GAUGE GLASS
IMMEDIATE DELIVERY
STANDARD AND HIGH PRESSURE
Our High Pressure Glasses have fused ends and are annealed by special process. Try them for highest steam pressures.
We manufacture Automatic Air Valves and Hot Water Thermometers.
MAGEE STEAM SPECIALTY CORPORATION
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No. 21 Coil Fire Pot.
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The No. 21 Coil Fire Pot will do the work that any other coil fire pot will do and do it quicker and will outlast several of other makes. The tank is made of heavy gauge seamless drawn steel with fittings welded in. The uprights, filler plug, valves and top plate are made extra heavy. The tank is made with extra large funnel, which prevents the overflow of gasoline in filling. Jobbers supply at factory price.
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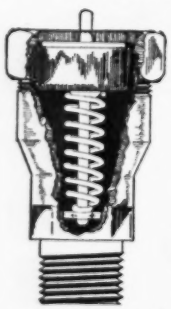
The Donnelly Automatic Vacuum Valve



insures hot water boilers against collapse through syphonage.

Can be used on closed tanks, vats, etc., where a vacuum is likely to occur.

Set up ready to install when you get it.

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HAMBURG Pneumatic Tanks

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Hamburg, Berks Co., Pa.

We also manufacture Steam Boilers, Hot Water Boilers and Plate Steel Drums

to the "Sanitary Engineer," Vol. 15, Dec. 11, 1886, which says of the investigation:

"Such disinterested work as is here reported, is very creditable. Moreover, it is of value, since the investigations were evidently conducted to get at the real facts; no unusual conditions were arranged, and no misleading conclusions are drawn. As was to have been expected, the results of Philbrick and Bowditch in their investigation for the National Board of Health have again been reached. Mr. Brown, like Messrs. Philbrick and Bowditch, had no commercial interests to serve by securing special results; consequently his experiments were fairly and intelligently conducted and his conclusions are entitled to consideration."

Mr. Brown states in his recapitulation:

"I conclude: Traps, when properly vented, are not siphonable. It has been asserted that, when the vent is placed on the crown of the trap, in time it becomes choked by refuse matter adhering to the surface. In these experiments the vent has been put in different positions and it makes no difference in its effectiveness, as long as it is between the trap and the vertical soil pipe. With a little care the Y can be so placed and shaped that the matter passing through the pipe would not adhere to the vent."

J. Pickering Putnam dismisses Mr. Brown's tests in his previously mentioned book with the words:

"Another illustration of trap testing apparatus, upon which interesting experiments on siphonage have been made, is given in Fig. 263. This apparatus was used at the Museum of Hygiene, U. S. Navy Department, at Washington, and they showed substantially the same results as the experiments already described." The author fails to even mention the name of the investigator.

So far as I am able to ascertain facts with regard to conditions in New York City between 1880 and 1890, I find that the first "Law and Regulations governing the Plumbing and Drainage of all Buildings hereafter erected" were enacted by the New York City Health Department on April 3, 1883, on authorization by the State Legislature in Chapter 450, Laws of 1881, passed June 4, 1881.

Great credit is due to Dr. Charles F. Chandler, who was president of the New York City Board of Health from 1873 to 1884, inclusive. The regulations provided that "Traps must be protected from siphonage, and the waste pipes leading from them ventilated, by a special air pipe, in no case less than 2-inches in diameter, for water closet traps, and 1½ inches for other traps;" also "that every water closet, urinal, sink, basin, washtray, bath, and every tub or set of tubs must be separately and effectively trapped." No particular type of trap seems to have been prescribed

While no record appears to be available of the tests on which these regulations had been based, I consulted Dr. Chandler personally to ascertain what steps had been taken by him in this respect prior to the preparation of the "code." Dr. Chandler, who is perhaps, in these days, better known as Professor Chandler of Columbia University, told me that he had, as president of the Board of Health, obtained an appropriation from the city for experimental plumbing tests, and that he had caused to be installed an actual plumbing system in the New York City Board of Health office in the Eighties for testing purposes, which system, he said, was fitted with glass traps. He concluded from his experiments that the protection of the health of the people of New York City demanded the back-venting of each fixture trap. Professor Chandler expressed it as his opinion that the general introduction of unvented anti-siphon traps in New York City would be most unfortunate and ill-considered, because of their tendency to foul, their subsequent

loss of siphonage resisting qualities, the danger of back pressure with resulting "blowing" of traps, in plumbing systems without back air pipes; and the increasing menace of pipe corrosion which will necessarily follow the decrease in pipe ventilation.

(To be Continued.)

AUXILIARIES FOR FANS IN HEATING AND VENTILATING WORK.

(Continued from Page 534.)

the pin "A," in which case the armature circuit is open. By moving the lever toward the right, the circuit is closed through the resistance coils a, a, a, and by moving it still further toward the right from point to point, more coils are cut out and the speed correspondingly increased. When the lever is in the vertical position, shown in the diagram, the resistance is entirely cut out and the lever is held in place by a small electro-magnet, the coils of which are in series with the field. When the main switch is thrown and the current cut off, the magnet ceases to act and the lever is automatically thrown back against the pin "A" by means of a spring. In the case shown, the lever "S" must be operated by hand, but as ventilating fans, especially those for exhaust, are frequently installed in places difficult of access, remote control is often very convenient. In arrangements of this kind an automatic starter may be employed, in which case it is only necessary to push a button, located at a distant point.

Speed regulation is obtained in three ways, as follows:—By field control, by armature control, and by a combination of the two.

In the first of these, resistance is introduced in the shunt-field circuit of the motor. The speed increases as the

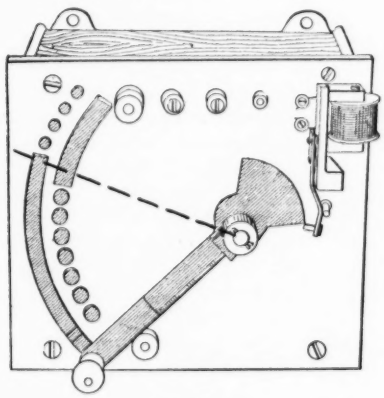
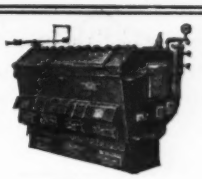


Fig. 19.

amount of resistance is increased, so that the *normal* speed is the *lowest* that can be obtained by this method, and the arrangements, as to fan regulation, should be planned with this in view.

Starting and regulating rheostats are combined in a single instrument, as shown in Fig. 19. Beginning with the lever in the position shown and moving it over the successive points upward, cuts out the armature resistance and brings the motor up to the lowest working speed when the lever is in the position shown by the dotted line. Moving it forward over the remaining points introduces resistance in the field coils, and increases the speed, which attains a maximum when the last point is reached. This is a favorite method of regulation, when the required speed range is not too great, as the loss in energy is negligible.

ECONOMY  EFFICIENCY

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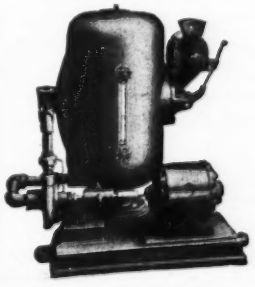
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Shunt motors for fan work are commonly designed for a speed variation of 100 per cent by this method.

In the second method, by armature control, a speed variation of 50 per cent may be obtained, but there will be a corresponding loss in energy amounting to nearly 20 per cent of the current supplied to the motor under full load. This method of control acts in a reverse way to the first, —that is, introducing a resistance in the amature *reduces* the speed. Rheostats of this kind are commonly used in cases where the fan is run at its maximum normal speed most of the time, with occasional small speed reductions for limited periods.

Where a very wide speed range is necessary, combined field and armature control may be employed, thus obtaining a speed range of 150 per cent. That is, a reduction of 50 per cent from normal by armature control and 100 per cent increase by field control.

The regulating devices above described are for direct-current motors only. Alternating current motors in general use for driving ventilating fans, are of two kinds, known as the "squirrel-cage" and "wound-rotor" types.

The first of these is the simplest and is usually employed where the fan is to be run at constant speed. This motor is strictly a one-speed machine and does not permit any variation from this.

When regulation is required, and only an alternating current is available, the wound-rotor type of motor may be used, which is capable of a maximum speed reduction of about 50 per cent by means of resistance introduced into the rotor circuit. Like armature control in direct-current motors, this results in considerable loss of energy and should only be used under conditions similar to those already mentioned in connection with this method of control.

It should be noted in relation to fan regulation, that with the centrifugal type, the power required varies approximately with the volume of air handled, so that if the discharge is throttled to deliver only one-half the normal quantity, the power required to drive the fan will be reduced practically the same amount. This, in some cases, is preferable to changing the speed of motor, and may be found useful in connection with the squirrel-cage type. The objection to this arrangement is the roaring of air at high velocity when throttled in this way, and the tendency to rattling or other noises at the damper. However, these difficulties may be eliminated by locating the throttling damper at some distance from the fan outlet, making the restriction rather gradual instead of abrupt, and providing a damper of such rigid construction as to prevent any possibility of rattling, either in an open or closed position.

The Independent Truck Service organized by the Citizens' Transportation Committee of New York City to move freight from coastwise steamship piers because truckmen, in sympathy with striking longshoremen refused to handle it, began actual operations June 10th. The management of this operation is under Col. Charles D. Hine, who took the 165th Rainbow Division overseas.

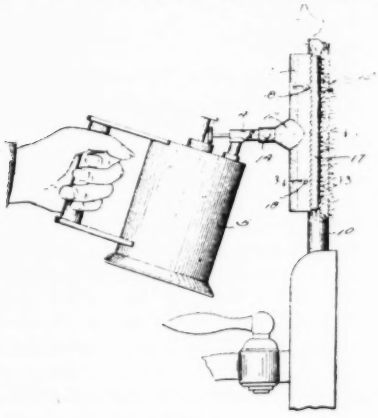
London Daily Mail announced June 11th that the London University College and its hospital and medical school have been offered £1,205,000 by the Rockefeller Foundation, to be devoted to teaching and research work. This is not a charitable gift, it is understood, but involves conditions including erection of various new units including an institute of anatomy, which promises to be the finest in the world.

Watch for the Convention Number of "Domestic Engineering," to be published June 26th.

Patents

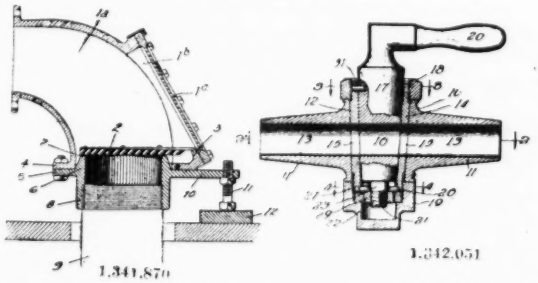
Plumbing Department.

1,341,514. Universal Quick Thaw Torch. Joseph W. Moss, Beacon, N. Y. A water pipe thawing attachment for blow torches, comprising a tubular casing having closed ends and a longitudinal opening adapted to extend over a portion of the outer surface of a pipe, the marginal edges adjacent said opening being provided with projections or serrations to engage the pipe and a tubular extension projecting from the casing opposite said opening and adapted to be secured to the burner tube of a blow torch.



1,341,514.

1,341,870. Elbow Check Valve. Herbert J. Woock and Walter R. Woock, Lodi, Calif., assignors to Superior Manufacturing Co., Lodi, Calif., a corporation. In combination with a pump and a suction pipe, an elbow check valve connecting the same, a horizontal extension at the lower end of the valve, and an adjustable bolt threaded into the extension and adapted to bear upon a support to carry the strain and weight of the suction pipe and elbow.



1,341,870 1,342,051

1,342,051. Valve or Cock. George Lapenda, Chicago, Ill. In a valve, the combination with a casing having inlet and outlet openings intersected by a tapered opening, of a tapered sleeve located in said tapered opening and having inlet and outlet openings to register with those of the casing and provided at its ends with external screw threads, said sleeve being of sufficient length to extend through each end of the tapered opening in the casing, a tapered plug or valve having a transverse port to register with the openings of said sleeve rotatably mounted in the sleeve, said plug having at one of its ends a reduced extension party screw-threaded a washer surrounding the unthreaded portion of said exten-

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Holds Tight and Firm Anywhere

Can be attached to any wood or iron, round or square post, pole or tree.

Jaws of best tool steel, hardened and drawn. Will not crush or allow pipe to slip. Made in two sizes.

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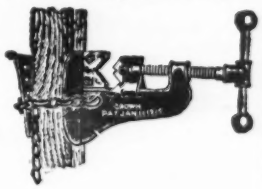

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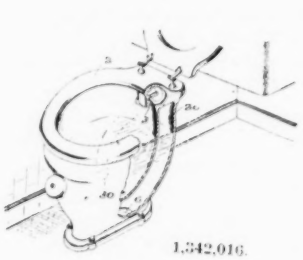
sion and engaging said sleeve, a nut engaging the screw-threaded portion of said extension to hold said washer in position, a cap nut engaging the projecting end of the sleeve adjacent to said extension, and another nut engaging the opposite end of said sleeve.

1,342,016. Water Closet Bowl. Harvey D. Farris, Spokane, Wash. A water closet bowl having an outlet, a descending overflow leg in communication with the outlet, and an ascending overflow leg in communication with the upper end of the descending leg and communicating with the interior of the bowl through the bottom thereof at one side of the front to rear middle line of said bottom.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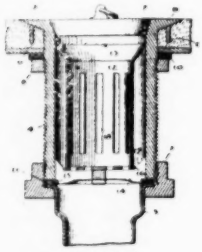
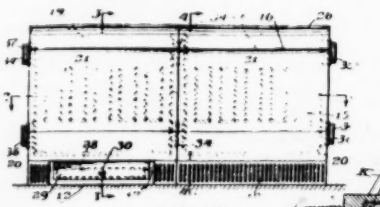

1,342,046

1,342,046. Washtray. Louis Heino, Oakland, Calif. A waste pipe connection for wash trays comprising a cylinder having a beveled flange projecting outwardly therefrom and adapted for securing said cylinder to said wash tray, in combination with a straining cup having perforate sides located within said cylinder, a spider integrally formed at the lower part of said cylinder, forming a support for said straining cup, said spider being provided with central depressed portions, to centralize said cup and upward inclined portions to direct said cup into said depressed portions.

Heating Department.

1,341,649. Radiator. Hosford D. Kellogg, Haverford, Pa. A radiator, comprising a plurality of spaced longitudinally extending channels, a plurality of spaced transversely extending channels projecting rearwardly beyond said first channels, and a web provided with restricted openings and extending between the walls of said channels, said radiator being adapted to be positioned against, and with the walls of said transverse channels in uniform contact with, the wall of a room, to form substantially inclosed upright flues surrounded by said web, the said last-named wall and the walls of said channels.


1,341,649.

1,342,356.

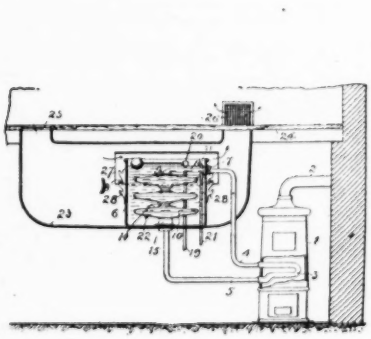
1,342,052

1,342,356. Pipe Wrench. Roy B. Shook, Dayton, Ohio. A pipe wrench comprising a fixed jaw member having a

portion recessed on opposite sides and heads formed at the terminals of said recessed portion, said heads having inwardly lying recesses, the recesses of one having shoulders formed therein and the recesses of the other being tapered upwardly and outwardly, a frame pivotally united to the recessed portion of said fixed jaw member, and entering the recesses in the said heads, said frame having shoulders formed on the portions which enter the recesses in one of said heads to abut against the shoulders therein, and said portions of the frame which enter the recesses in the other of said heads being adapted to interlock therewith, an adjustable jaw member supported in said frame, and an adjusting nut engaging said adjustable jaw member within said frame.

1,342,052. Thermostatic, Heat Regulator. Samuel Lippert, East Cleveland, Ohio. In a device of the class described, the combination of a valve casing provided with an inlet passage communicating with the exhaust end of a radiator, an outlet passage in said closing positioned at a lower level than said inlet passage, a thermal valve controlling said outlet passage, a gravity actuated check valve controlling said inlet passage, and a manually operated valve positioned in said inlet passage.

1,342,214. Air Moistening and Heating System. Robert W. Hardie, White Plains, N. Y., assignor to R. W. Hardie Co., Inc., a corporation of New York. In an apparatus of the character described, the combination of an open-topped receptacle for holding water to be vaporized and for use as an expansion tank, a heater within the receptacle provided with an aperture opening from the interior of the heater into the interior of the receptacle below the water level of the receptacle, a heat generator, pipe connections from the heat generator to the inlet end of the heater, a radiator below the level of said receptacle, and pipe connections between the heat generator and radiator, and between the radiator and heater.



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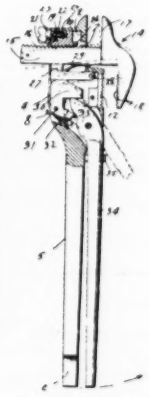

1,341,712.

1,341,712. Wrench. James Gell, Branford, Conn. In a wrench, a stationary jaw having a handle portion, a movable jaw slidably mounted through said stationary jaw and provided with a toothed shank, a pivoted member connected to said stationary jaw and adapted for engagement with said toothed shank, a cam member pivotally connected to said stationary jaw for engagement with said pivoted member, said cam member being provided with a cut out portion, and a lever having one free end for co-operation with said cut out portion of the cam member.

O. J. Zimmerman & Co., 337 North Main Street, Decatur, Ill., have announced that they will retire from the plumbing business and will sell their stock very soon.

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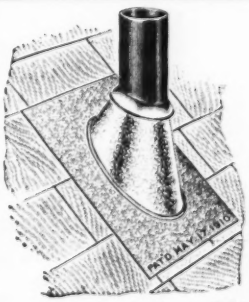

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Classified Advertisements

The charge for advertisements under this heading is 6 cents a word, including heading and address; $1.00 minimum. To insure insertion, copy and remittance should reach us by Wednesday morning.

Situations Open

WANTED—MECHANICAL ENGINEER with long experience on manufacturing of pipe cutting and threading tools. Address 152. "Domestic Engineering," Chicago. 6-19-7-10

WANTED — PLUMBERS — COMBINATION men preferred. Nonunion. In residential town near Boston, Mass. Steady work year around. State salary you will work for. Address 153, "Domestic Engineering," Chicago. 6-19-26

PLUMBERS AND STEAM FITTERS wanted for the Sunny South. Open shop conditions in an open shop town. Wages $1.00 per hour, eight hour day. Must be first class mechanics. Pettit-Galloway Co., 114 E. Seventh St., Little Rock, Ark. tf

WANTED—FIRST-CLASS PLUMBERS to work under open shop conditions for large construction work throughout South. Highest wages paid. None but competent mechanics need apply. Address 142 "Domestic Engineering," Chicago. 5-29-6-19

WANTED—TWO EXPERIENCED OFFICE men in plumbing and heating line. One Order and Price Clerk, one Assistant in Purchasing Department. Excellent opportunity for good connection. Apply Leighton Supply Co., Ft. Dodge, Ia. 6-19

Situations Wanted

OPEN FOR MANAGEMENT—MANAGER of full responsibility or as general sales manager. Age 40 years, have long record of success and achievement in difficult matters. 16 years with large manufacturing plant, producing devices in Brass, Iron, Steel, etc., Technical (quasi) a producer, skilled correspondent of especial value to concerns desiring to expand or that have run down and below capacity where sheer ability to accomplish is required. Prefer full charge of medium sized plant, direction of sales, or charge of important branch office, employing above metals in construction, or will engage with any going business, requiring a high grade man. Can organize, systematize, analyze. Address 150, "Domestic Engineering," Chicago. 6-12-19

WANTED—POSITION WITH OPPORtunity to increase knowledge of heating and ventilating business. Conscientious and interested service assured. Served reliable firm a number of years as bookkeeper, draftsman and estimator. New York City territory preferred. Address 154, "Domestic Engineering," Chicago. 6-19

A COMPETENT SALES MANAGER, sales executive, desires to get in touch with manufacturers, wishing to increase their output, in the New York or Pacific Slope fields. 20 years' experience in Steam, Water and specialties. Over 15 years with one large concern. Can successfully market any meritorious device, a producer of real worth. Capable of handling technical subjects. Will organize a staff if necessary. Location either point named above. At liberty now. Salary and bonus arrangement desired. Address 151, "Domestic Engineering," Chicago. 6-12-19

Miscellaneous

TIME SHEETS, JOB TICKETS, ESTImating blanks, illustrated stationery blotters, etc. For plumbers. Reasonable Send for catalog and price list. Prompt service. P. Fink & Sons, 56 N. 7th St. Philadelphia, Pa. 11-22 tf

SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf

Have You Engineering Ability?

There is unlimited demand for scientifically trained men in the Heating and Ventilating field today, and a distinct shortage of qualified engineers.

You can now secure complete scientific training in modern engineering practice through the new home study course of **HEATING AND VENTILATING ENGINEERING** available at

The Cleveland Engineering Institute
8122 Euclid Ave., Cleveland, Ohio

Write us for further information.

ENGLISH CANADIAN KNOWING THE French language thoroughly, with established headquarters in Montreal, desires to handle plumbing, heating, ventilating, electrical lines, vacuum cleaning and farm lighting systems, etc., as manufacturers' agents for American firms. Controls trade in Canada, east of Toronto. Address 134, "Domestic Engineering," Chicago. 5-29 tf

BIN LABELS

RED. ELLS $1\frac{1}{2} \times \frac{3}{4}$

For water, gas and steam. Over 10,000 different kinds. Send for samples.
Haddon Bin Label Co.
Haddon Heights, N. J.

WANTED—GOOD TOLEDO PIPE threading machine cutting from 2½" or 4½" to 6". Must be in good shape. Correspond with M. F. Banzhaf Co., Marshalltown, Ia. 6-19

For Sale

FOR SALE—TO SETTLE AN ESTATE by June 30th. An A1 plumbing, heating and sheet metal business established 53 years in Central Michigan. Population 50,000. Big jobbing trade. Will invoice $2,000. Excellent opportunity. Address 149, "Domestic Engineering," Chicago. 6-12-19

California Plumbing Business FOR SALE

A business established 15 years, located in the down-town section of

LOS ANGELES

No Contracts: ALL DAY-WORK
Electric and Auto Accessory
Business pays all overhead

Business averages over $5000 monthly. Owner retiring from business. Can be purchased for

$20,000

For full particulars address

WILLIAM R. MARSHALL
454-460 I. W. Hellman Building
Los Angeles : : California

FOR SALE—1 STILWELL VAILE CO. compound steam water pump. Size 9x14x8¼x12". 1 Fairbanks Morse & Co. Steam Water Pump. 1 100-hp. Horizontal tubular Boiler 72"x16'. 86 4" tubes. Kilbourn Municipal Water & Light Plant, Kilbourn, Wisconsin. 6-19-26

Government Proposals

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., June 12, 1920.—Sealed Proposals will be opened in this office at 3 p. m., July 9, 1920, for a brick-set, down-draft, firebox heating boiler, automatic gas water heater, storage tank, etc., in the United States Post Office, Athens, Ohio, in accordance with drawings and specification, copies of which may be had at this office or at office of Custodian, Athens, Ohio, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 6-19-26

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., June 2, 1920.—Sealed proposals will be opened in this office at 3 p. m. June 25, 1920, for furnishing and installing a new Brick-set Down draft, Fire box, heating boiler, in the United States Post Office and Custom House, Port Arthur, Texas. Drawings and specifications may be obtained from the Custodian at Port Arthur, Texas, or at this office, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 6-12-19

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., June 2, 1920.—Sealed proposals will be opened in this office at 3 p. m., June 25, 1920, for repairs to heating apparatus in the United States Post Office, at Louisville, Kentucky, in accordance with the drawing and specification, copies of which may be had at this office or at the office of the Custodian at Louisville, Ky., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 6-12-19

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., June 14, 1920.—Sealed Proposals will be opened in this office at 3 p. m., July 12, 1920, for new toilet rooms in the United States Post Office and Court House at Carson City, Nevada, in accordance with specification and drawings, copies of which may be had at this office or at the office of the Custodian, Carson City, Nevada, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 6-19-26

Books for Your Trade Library.

PRACTICAL METHODS OF SEWAGE DISPOSAL. By H. N. Ogden and H. B. Cleveland. Covers in detail the problem of sewage disposal for residences, hotels and institutions where connections to city sewers is not available. Size 5¾x9¼ in. 132 pages. Cloth. Price, $1.50.

SANITATION IN THE MODERN HOME. By John K. Allen. Explains the proper arrangement and equipment of bath room, laundry, kitchen, etc. A suitable book to present to your customer or prospective one. Size 5½x8 in. 272 pages. Cloth. Price, $2.00.

PRACTICAL MANUAL OF STEAM AND HOT WATER HEATING. By Edward R. Pierce. A comprehensive book, especially appreciated by the busy steamfitter. Every phase of steam and hot water heating is explained in every-day language, easily understood. Unlike the usual dry, technical treatise. Size 6x9 in. 340 pages. Cloth. Price, $2.50.

Domestic Engineering
407 S. Dearborn St., Chicago